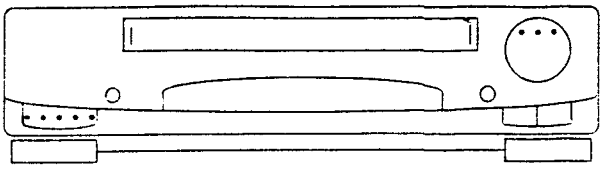
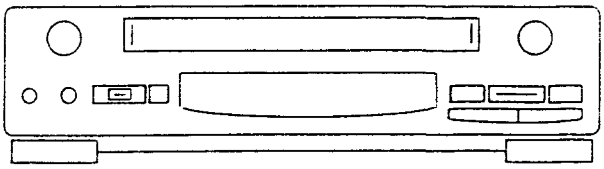
Video cassette recorder VR254

Service
Service
Service

VR254





Service Manual

VR254/55 & VR454/55 are video cassette recorders with a TV-reception part and electronic timer, suitable for recording and playing back TV-signals which meet the PAL TV-standard.
The signals are recorded on tape according to the VHS-standard.

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Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

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CS 567 93

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY

1.1.1 Top cover

1. Take out 4 screws Ⓐ and a screw Ⓑ.
2. To remove the top cover, slide in direction of arrow and lift away.

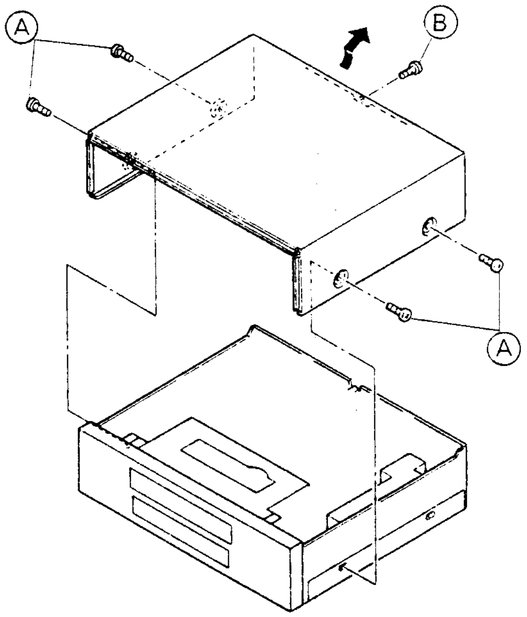


Fig. 1-1-1 Top cover

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage 2 tabs ⓐ of the front panel assembly from the upper side of the chassis.
3. Pull the front panel assembly forward you to disengage 3 tabs ⓑ of the front panel assembly from the bottom of the chassis, then remove the front panel assembly.

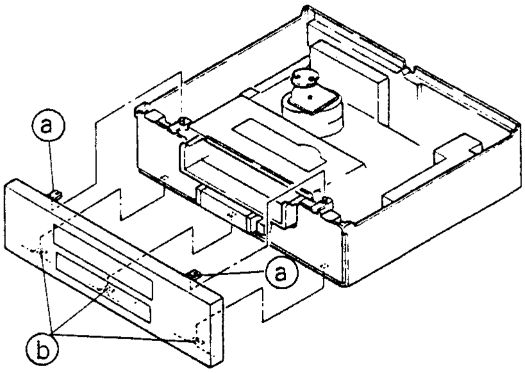


Fig. 1-1-2 Front panel assembly

1.1.3 Bottom cover

1. Remove the top cover.
2. Disengage 9 clawa ⓐ from the bottom of the chassis.
3. Disengage the bottom cover and 1 springs ⓑ from bottom of the chassis.

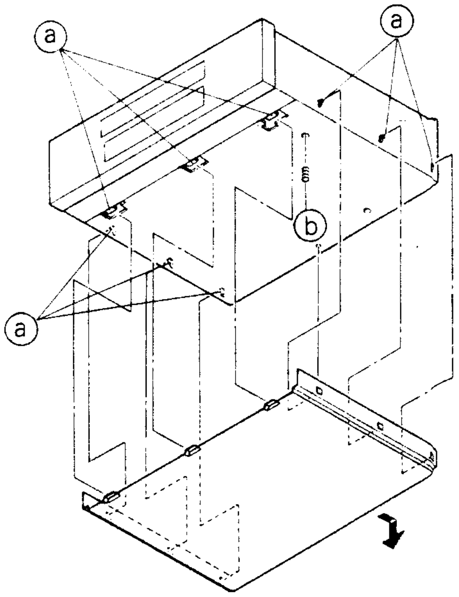


Fig. 1-1-3 Bottom cover

1.1.4 FRONT board assembly

1. Remove the top cover and front panel.
2. Disengage 6 claws ⓐ from the chassis.
3. Disengage 5 claws ⓑ, then remove the FRONT board assembly in direction of arrow.

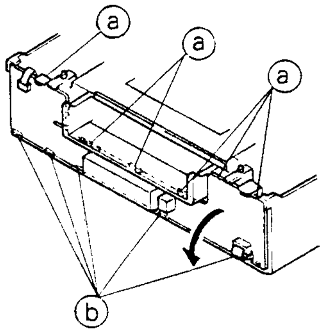


Fig. 1-1-4 FRONT board assembly

1.1.5 Cassette housing assembly

1. Remove the top cover and front panel.
2. Take out 4 screws F and 2 screws M .
3. Disengage 2 claws a from the holder.
4. Remove the cassette housing assembly in direction of arrow.

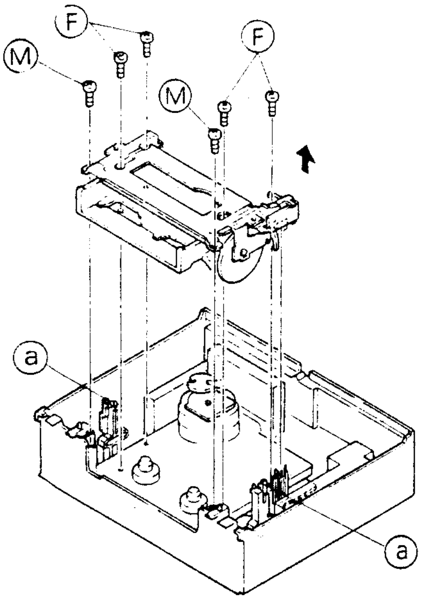


Fig. 1-1-5 Cassette housing assembly

1.1.6 PRE/REC board assembly

1. Remove the top cover.
2. Take out 2 screws G .
3. Disconnect connector CN502 from the PRE/REC board assembly.
4. Remove the PRE/REC board assembly with the shield in direction of arrow.

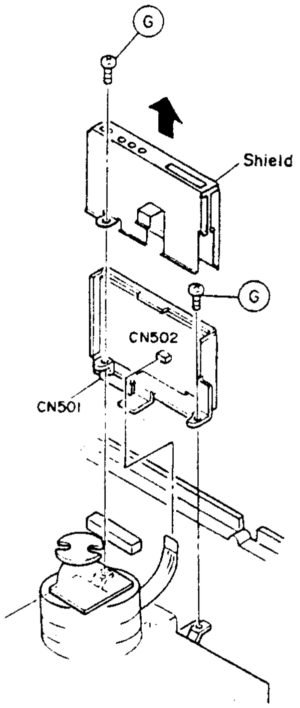


Fig. 1-1-6 PRE/REC board assembly

1.1.7 Drum assembly

1. Remove the top cover.
2. Disconnect a connector of stator assy.
3. Take out 3 screws Ⓛ and washer then remove the cleaher assy and drum assembly.

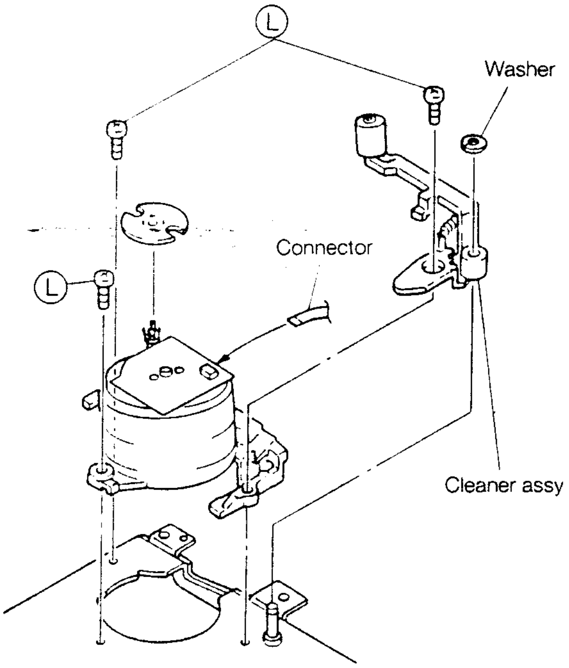


Fig. 1-1-7 Drum assembly

1.1.8 Main deck assembly

1. Remove the top cover, front panel and cassette housing assembly.
2. Take out 1 screwⒿ and Ⓚ , then remove the Bracket.
3. Take out 1 screws Ⓝ and disengage 3 connectors ⓐ from the MAIN deck assembly.
4. Remote the MAIN deck assembly in direction of arrow.

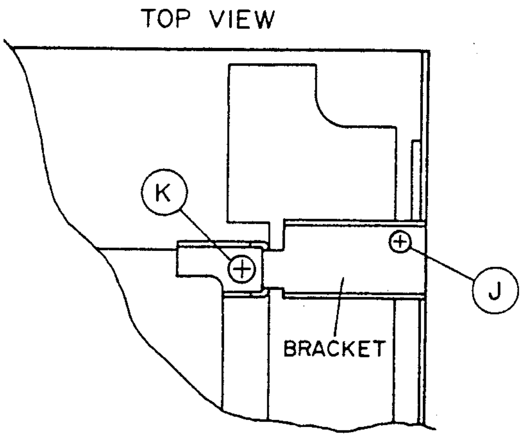


Fig. 1-1-8 Main deck assy

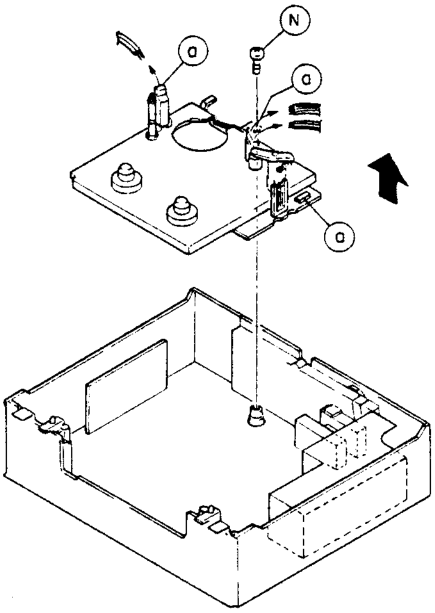


Fig. 1-1-9 MAIN deck assy

1.1.9 MAIN board assembly

1. Remove the top cover,front panel, cassette housing and main deck assy.
2. Take out 3 screws Ⓛ and 1 screw Ⓟ .
3. Remove the holder ⓑ and disengage 2 claws ⓐ from the chassis.
4. Remove the MAIN board assembly in the direction of arrow.

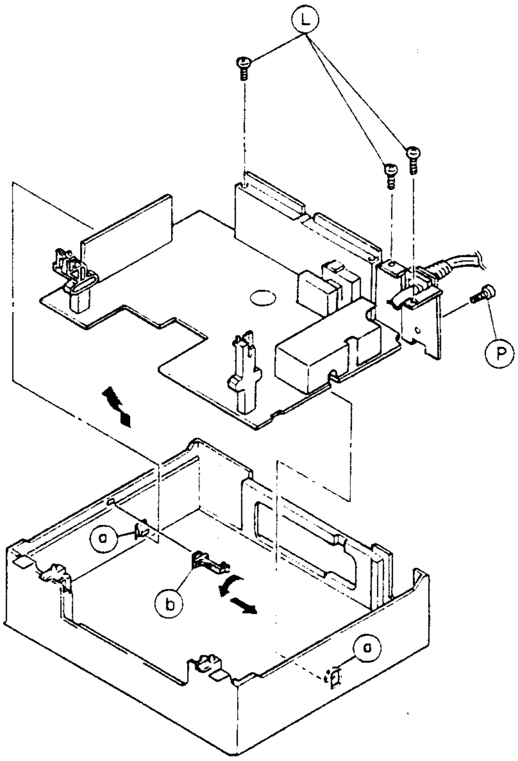


Fig. 1-1-10 MAIN board assy

1.1.10 Cassette housing installation

Note: *Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.*

1. Check that the marks of the control cam and pinch roller cam are aligned. If necessary, turn the worm clutch by hand to adjust the position.

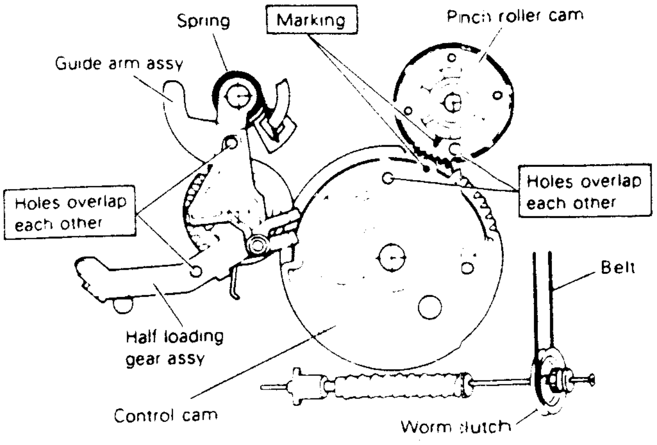

Spring
Marking
Pinch roller cam
Guide arm assy
Holes overlap each other
Holes overlap each other
Belt
Half loading gear assy
Control cam
Worm clutch

Fig. 1-1-11 Control cam and pinch roller cam position

2. Confirm that the clutch of the worm clutch assembly is locked. If necessary, engage the locked.

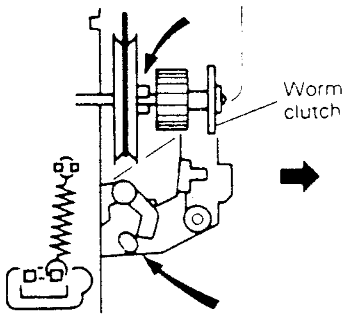

Worm clutch

Fig. 1-1-12 (a) Not locked

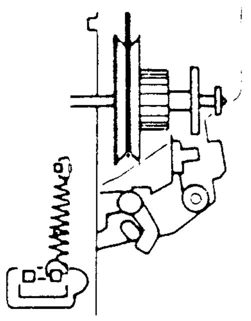


Fig. 1-1-12(b) Lock engaged

3. Install the front panel as shown in Fig 1-1-12 and re-engage the tabs. Supply power and use a spare cassette to check for normal loading and eject operations.

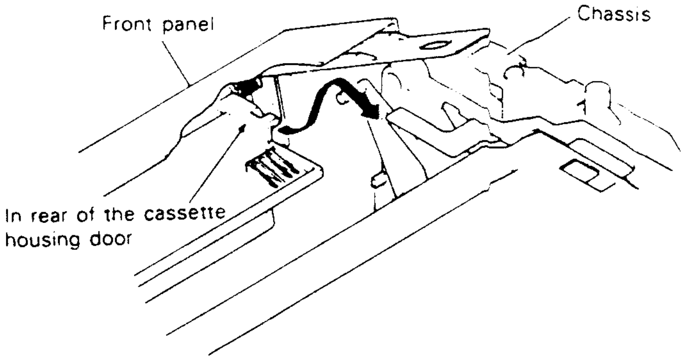

Front panel
Chassis
In rear of the cassette housing door

Fig. 1-1-13 Cassette housing door

1.2 SERVICE POSITION

1. Remove the top cover, front panel assembly and front board assembly.
2. Take out 4 screws Ⓐ, 1 screws Ⓑ 2 screws Ⓒ ; 1 screw Ⓓ and 1 screw Ⓔ as shown in Fig. 1-2-1.
3. Remove the holder b and disengage 2 claws a from the chassis.
4. Remove the mechanism assembly (including cassette housing assembly) and main board assembly out of the chassis as show in Fig. 1-2-2.
5. Overturn the mechanism assembly and main board assembly.
6. Connect the flat wires of (CN1, CN2)-the front board assembly to the main board assembly. Then check the pattern side of main board as shown on Fig. 1-2-3.

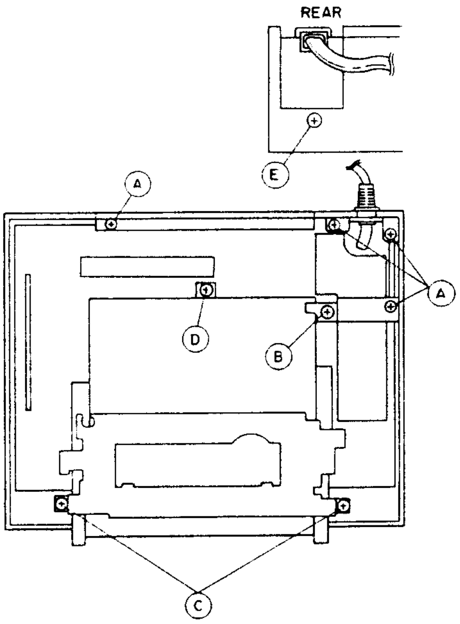

REAR
E
A
A
D
B
C

Fig. 1-2-1

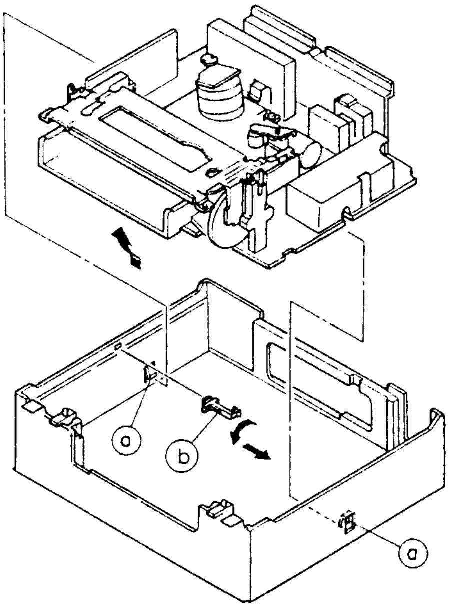


Fig. 1-2-2

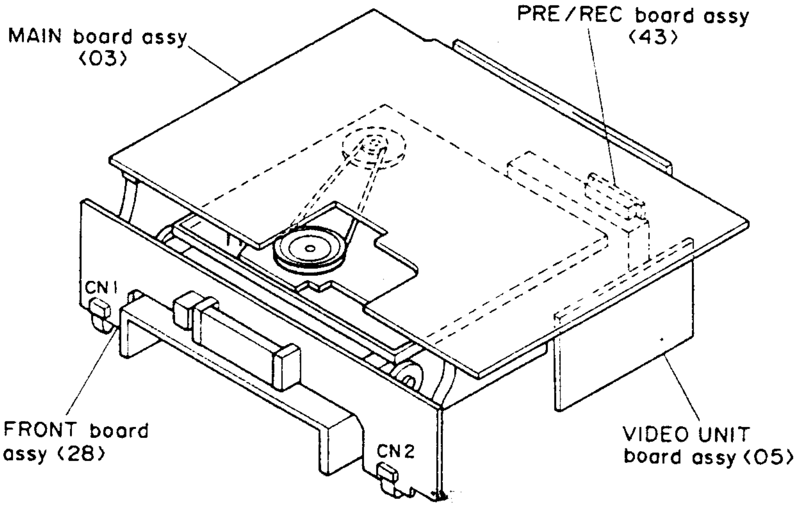

MAIN board assy
<03>
PRE/REC board assy
<43>
CN1
FRONT board
assy (28)
CN2
VIDEO UNIT
board assy <05>

Fig. 1-2-3

SECTION 2
MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

1) Disconnect VCR from AC power before soldering.
2) Avoid imparting stress to wires when disengaging connectors.
3) Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4) Use care not to damage tabs, claws, etc. during repairs.
5) Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6) When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this is omitted, the door will not open at Eject and the cassette cannot be removed.
   See Sec.1 DISASSEMBLY.

2.1.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1) Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2) Connect pins 2 and 3 of Main board connector CN601.
3) Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

2.1.3 Manual removal of loaded tape

In event of failure which leaves the tape in the loaded position, remove it by the following procedure.

1) Take off the top cover and main deck assy in order to wind the tape on the reel.
   See Sec.1 DISASSEMBLY.
2) Turn the mode motor belt by hand in the unloading direction to return the loading posts to the stop position, refer Fig. 2-1-1.

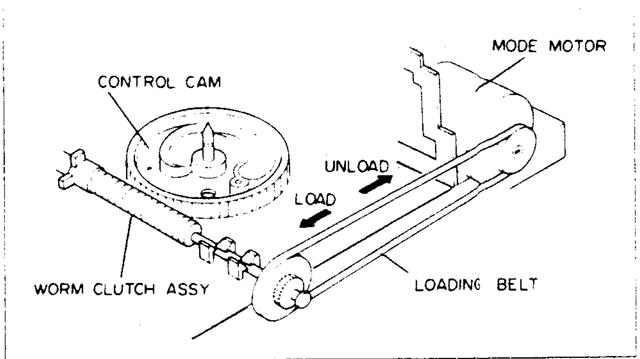


Fig. 2-1-1

3) From the bottom, turn the clutch unit by hand to wind the slackened tape onto the reel.

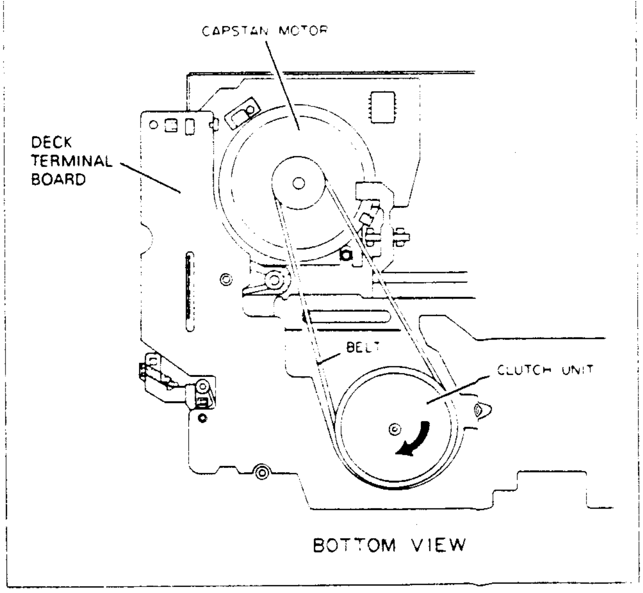


Fig. 2-1-2

4) Turn the mode motor further to where the cassette holder begins moving in the unloading direction, then remove the cassette tape.

Note: *Turn the mode motor and clutch unit alternately in order to avoid damaging the tape. It is important to avoid scratching the tape in the mechanism.*

2.1.4 Test equipment

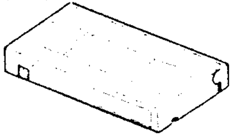
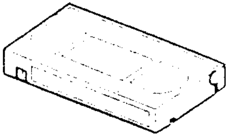
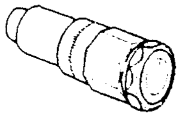
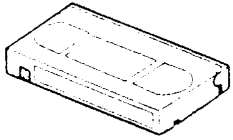
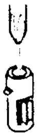
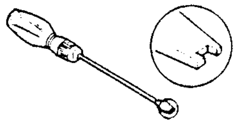
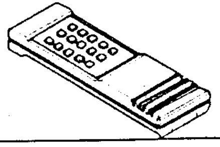
Alignment tape (SP) 4822 397 30262	Alignment tape (LP) 4822 397 30261	Torque gauge 4822 395 50262	Back tension cassette gauge 4822 395 90615
			
A/C head positioning tool 4822 395 90916	Roller driver 4822 395 90904	Presetting unit 4822 395 90915	
			

Table 2-1-1

2.2 MAIN MECHANISM PARTS

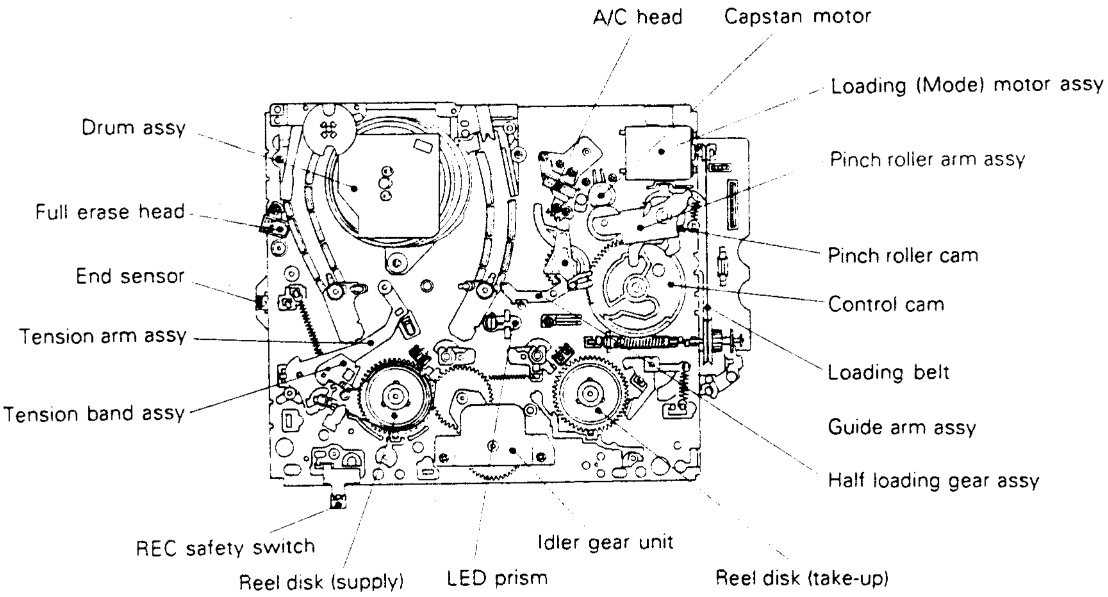

A/C head
Capstan motor
Loading (Mode) motor assy
Drum assy
Pinch roller arm assy
Full erase head
End sensor
Pinch roller cam
Control cam
Tension arm assy
Loading belt
Tension band assy
Guide arm assy
Half loading gear assy
REC safety switch
Idler gear unit
Reel disk (supply)
LED prism
Reel disk (take-up)

Fig. 2-2-1 Top view of main-deck

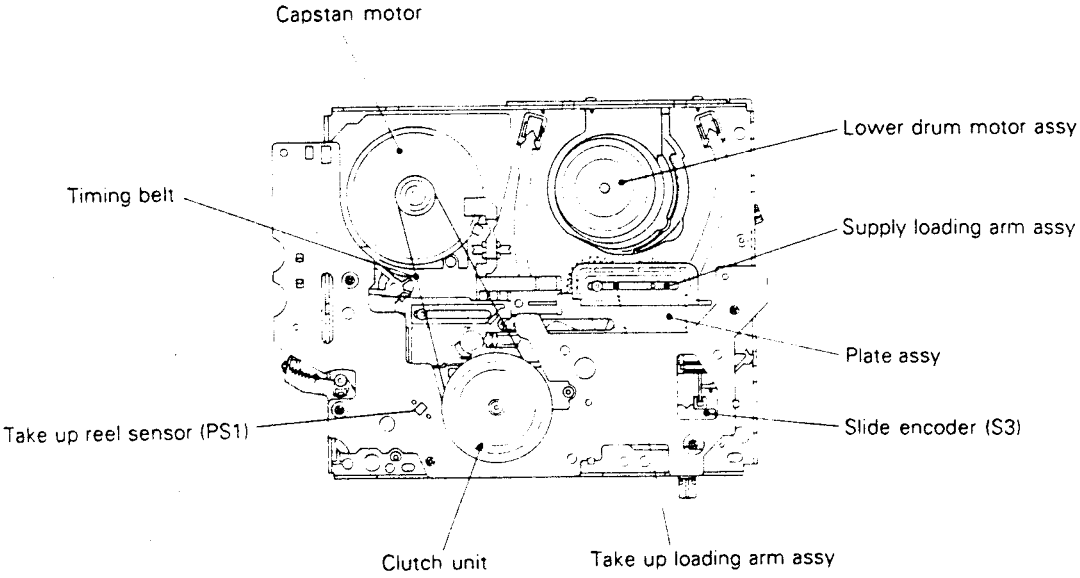

Capstan motor
Lower drum motor assy
Timing belt
Supply loading arm assy
Plate assy
Slide encoder (S3)
Take up reel sensor (PS1)
Clutch unit
Take up loading arm assy

Fig. 2-2-2 Bottom view of main-deck

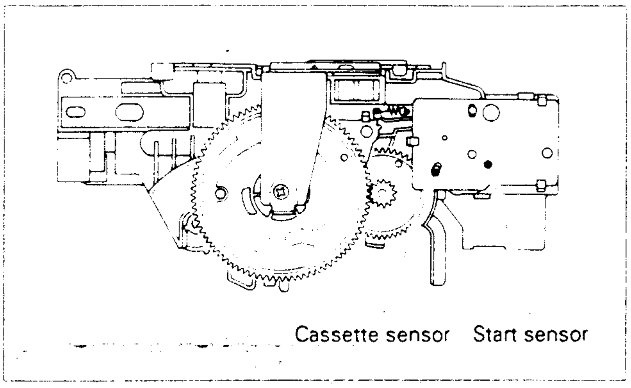


Fig. 2-2-3 Side view of cassette housing

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with finger-tip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).
For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.
Before oiling, clean with alcohol.
Apply one or two drops of oil.
Avoid excess oil.

1) Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 2-2-1

2) Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: *Stir grease that has been stored for an extended period.*

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced as and when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.
Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation hours						
		250	500	750	1000	1250	1500	2000
Tape Transport	Upper drum assy	★	★	★	○	★	○	○
	A/C head	★			○			○
	Pinch roller arm assy	★	★	★	★	★	★	★
	Full erase head							
	Tension arm assy							
	Lower drum assy							
	Capstan motor (Shaft)							
	Half loading gear assy							
	Guide arm assy							
Drive	Capstan motor							○
	Loading belt			○				○
	Mode motor assy			○				○
	Reel disk (Supply)			○				○
	Reel disk (Take-up)			○				○
	Clutch assy			○				○
	Worm clutch assy							○
	Plate assy							○
Others	Brush assy			○				○
	Tension band assy			○				○

★ : Cleaning
○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 MAIN PARTS REPLACEMENT AND ADJUSTMENT

2.4.1 Stator assembly

1) Take out 2 screws (A).
2) Raise the Stator Assembly in the direction indicated by the arrow to remove it (also remove the Inertia Roller).
3) Remove the flat cable.
4) To reinstall, first secure the flat cable, then insert 2 screws (A).
5) After reinstalling, be sure to perform switching point adjustment.

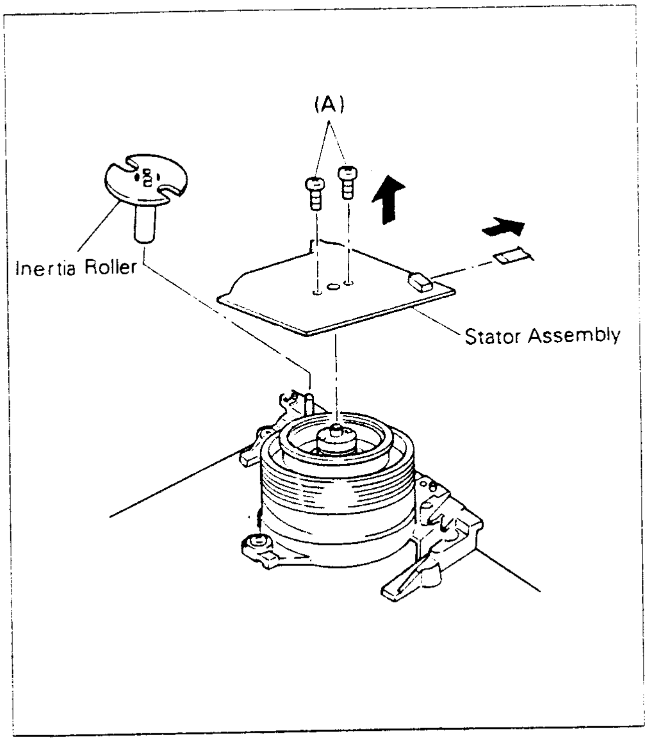


Fig. 2-4-1

2.4.2 Rotor assembly

1) Remove the Stator Assembly.
2) Take out 2 screws (B) and remove the Rotor Assembly.

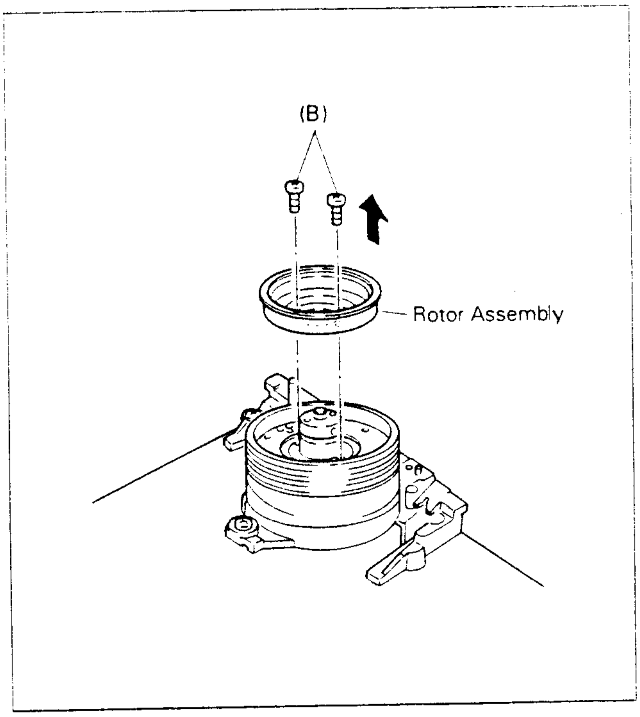


Fig. 2-4-2

Note: *A normal picture will not be obtained unless the phase is properly aligned when installing the Rotor Assembly. Also note there are three types of Rotors.*

3) Align the Upper Drum and Rotor Assembly phase as indicated in Fig. 2-4-3.
4) Overlap holes (a) of the Upper Drum with holes (b) of the Rotor Assembly (align holes in 3 locations) and secure with 2 screws (B) (see Fig. 2-4-3).

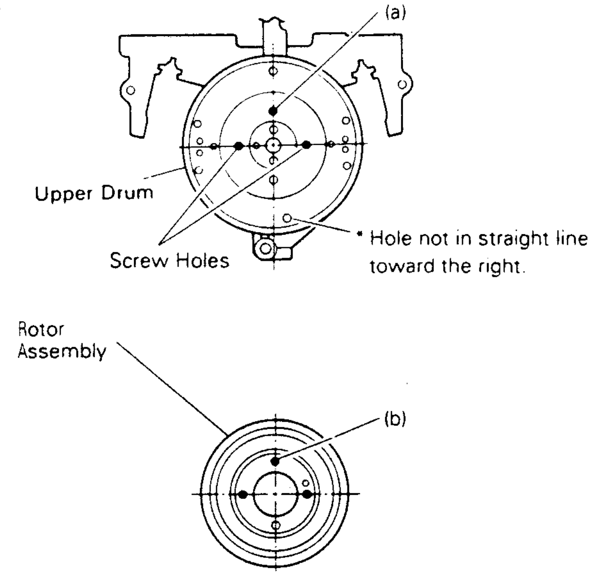

(a)
Upper Drum
Screw Holes
* Hole not in straight line toward the right.
Rotor Assembly
(b)

Fig. 2-4-3

2.4.3 Drum subassembly

1) Disengage the PRE/REC AMP board connector and flat cable.
2) Take out 3 screws (C) and remove the Drum Subassembly.

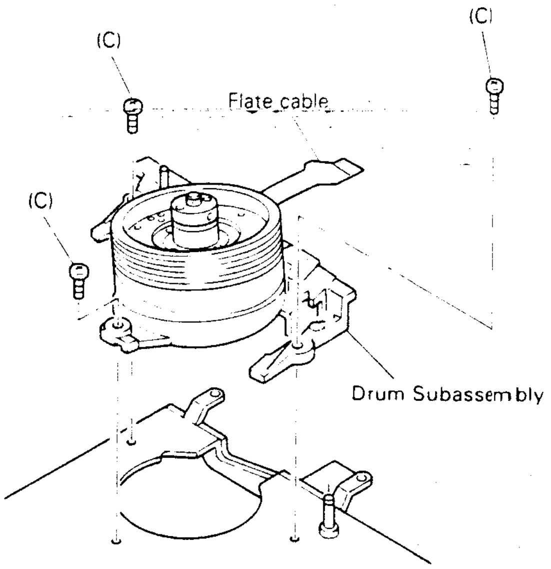

(C)
(C)
Flate cable
(C)
Drum Subassembly

Fig. 2-4-4

2.4.4 Upper Drum assembly

1. Removal

1) Remove the Stator and Rotor Assemblies.
2) Use a 1.5 mm hexagonal wrench to loosen the Collar Assembly screw and remove the Collar Assembly.
3) Remove the Upper Drum Assembly and use tweezers to remove the Washer.

Note: ***If the Brush is replaced, do not apply the grease to the contacts.***

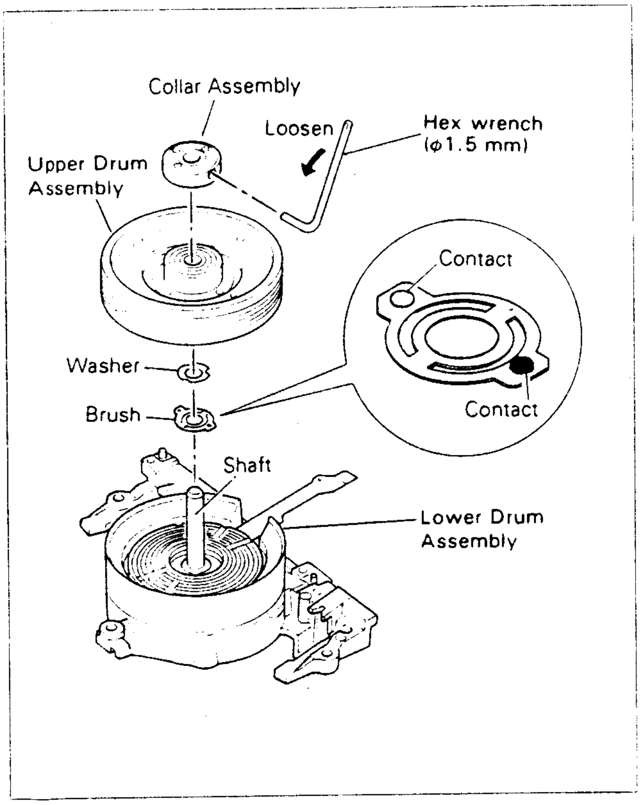

Collar Assembly
Loosen
Hex wrench (φ1.5 mm)
Upper Drum Assembly
Contact
Washer
Brush
Contact
Shaft
Lower Drum Assembly

Fig. 2-4-5

2. Installation

1) Use an air brush to clean the Lower Drum Assembly and the coil section of the new Upper Drum Assembly.
2) Set a new Washer on the Drum shaft (see Fig. 2-4-6).

Note: *Be sure to use the new Washer supplied with the replacement Upper Drum Assembly.*

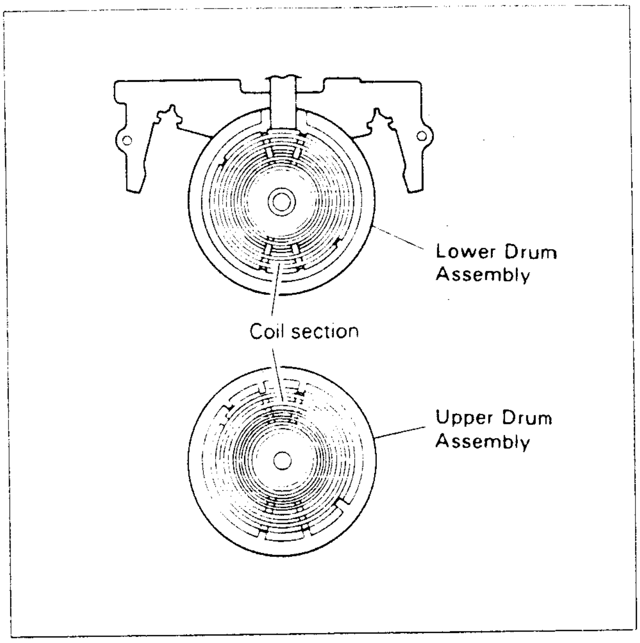

Lower Drum Assembly
Coil section
Upper Drum Assembly

Fig. 2-4-6

3) Note the top and bottom of the Collar Assembly and determine the position as indicated in Fig. 2-4-7.

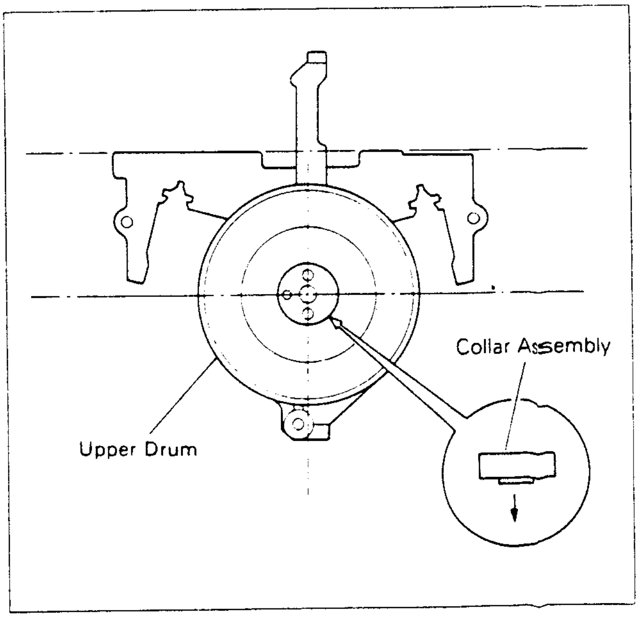

Collar Assembly
Upper Drum

Fig. 2-4-7

4) While pressing the Collar Assembly evenly from above with the fingertips, secure the hexagonal screw.

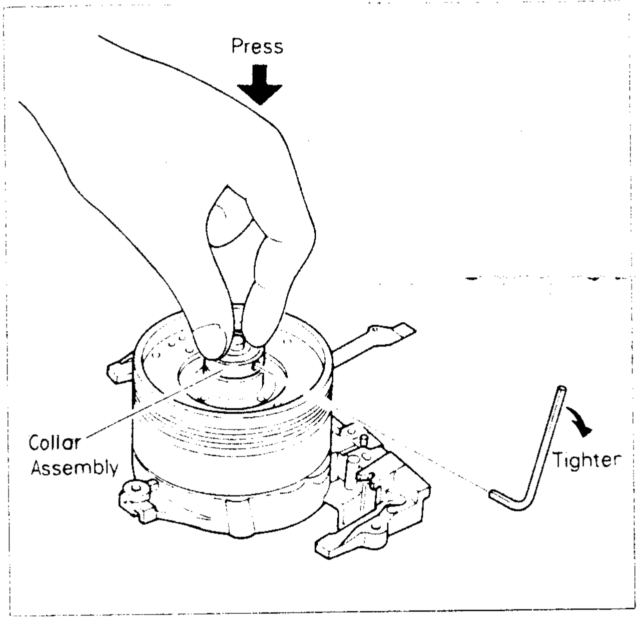

Press
Collar Assembly
Tighter

Fig. 2-4-8

5) After installing, gently turn the Upper Drum by hand and confirm normal rotation.

6) Install the Rotor and Stator Assemblies.

7) Clean the Upper and Lower Drum Assemblies and perform the following adjustments;

- Switching Point Adjustment
- Interchangeability Adjustment (be sure to check EP mode)
- Recording color level Adjustment

2.4.5 Tension arm positioning

1) Remove the cassette housing, set the playback mode.
(Refer to 2.1.2 Check without cassette housing)

2) Turn the eccentric adjust pin to position the mark of the chassis with the tension arm tip as shown Fig. 2-4-9.

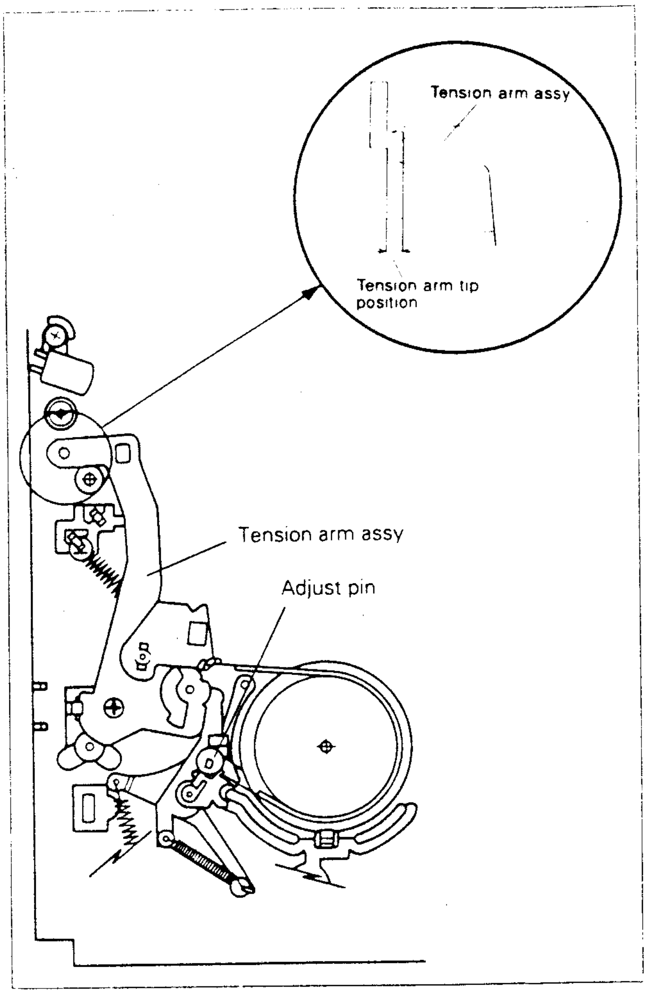

Tension arm assy
Tension arm tip position
Tension arm assy
Adjust pin

Fig. 2-4-9

Note: *Normally, if the tension post position is properly adjusted, the back tension will assume the correct value. Use the back tension cassette gauge and confirm playback tension is 35 g-cm to 48 g-cm (13.8 g-inch to 18.9 g-inch).*

2.4.6 Pinch roller cam position

1) Set the mechanism to the eject mode (cassette holder is locked in eject position).
2) Install the pinch roller cam so the largest hole near the gear teeth is aligned with the hole on the chassis.
3) Set the control cam on the deck with the hole in the groove aligned with the hole on the chassis. Observe that the small hole on the control cam and the mark on the pinch roller cam are aligned. (If the control cam does not fit readily, shift the loading arm and plate assembly within the range of mechanical play.)
4) Install the half-loading gear assembly with the hole aligned with the hole on the chassis. Secure with split washer.
5) Install the guide arm assembly with the hole aligned with hole on the chassis. Engage the spring properly.

Note: *This is the correct mechanical alignment to install the cassette housing. The cassette housing should also be in the eject position.*

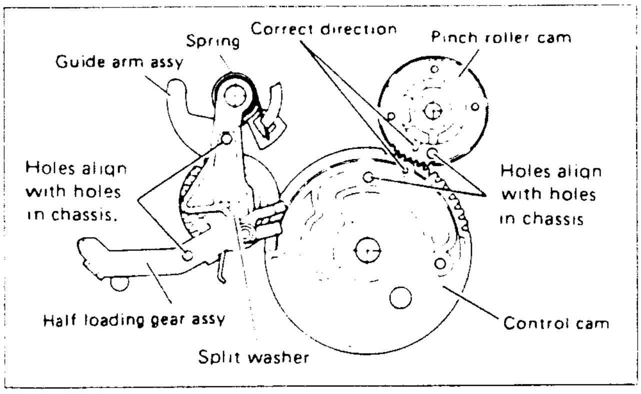

Correct direction
Spring
Pinch roller cam
Guide arm assy
Holes align with holes in chassis.
Holes align with holes in chassis
Half loading gear assy
Control cam
Split washer

Fig. 2-4-10

2.4.7 Audio/control head height

1) Adjust the 3 screws (screw ①,②,③ in Fig. 2-5-1) to set the audio/control head height to 6.6 mm (0.26 in). Adjust all screws equally.
2) Perform interchangeability adjustments to obtain the specified control pulse and audio signal levels.

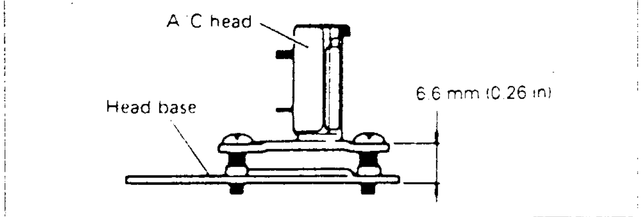

A/C head
Head base
6.6 mm (0.26 in)

Fig. 2-4-11

Notes:
- *It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.*
- *Perform interchangeability adjustments after electrical adjustments.*

2.4.8 Loading arm and plate assembly position

1) Set for Eject mode and remove the deck terminal board.
2) Check that the preset hole of the plate assembly is in the preset position. Temporarily insert a 3 mm (0.12 in) screw to hold the position.
3) By hand, hold the loading arms in the unloading (inner) position and set the plate assembly from above.
4) Install Red and White split washers. Remove temporary screw.
5) Move the mode motor belt by hand and confirm mechanism operation.

Note: *Observe that the brake assembly pin is engaged with the plate assembly groove.*

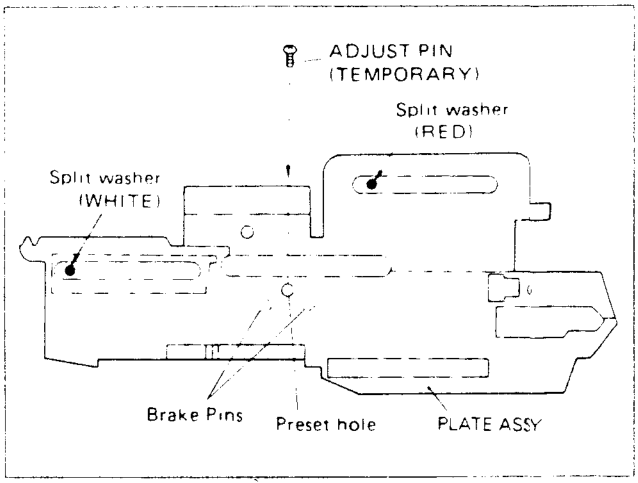

ADJUST PIN (TEMPORARY)
Split washer (RED)
Split washer (WHITE)
Brake Pins
Preset hole
PLATE ASSY

Fig. 2-4-12

2.4.9 Reel disk height

1) Measure the height of the reel disk above the main chassis.
2) Add or remove washers at the bottom of the reel disk to adjust for 12 mm (0.47 in). See Fig. 2-4-13.

Note: *This adjustment is normally not needed. Perform after replacing the reel disk.*

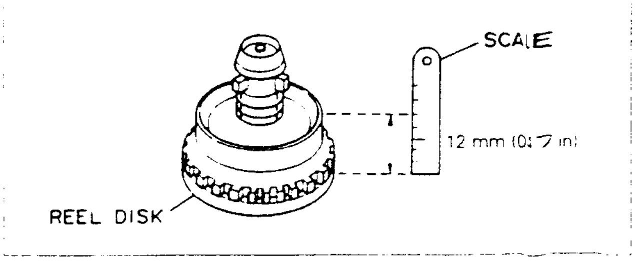

SCALE
12 mm (0.47 in)
REEL DISK

Fig. 2-4-13

2.5 TAPE INTERCHANGEABILITY ADJUSTMENT

Note: *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components (A/C head, drum assembly, etc.).*

2.5.1 Height and azimuth adjustment of A/C head

1) Connect the oscilloscope to the audio output jack on the rear of the deck.
2) Play back the stairstep portion (6 kHz, Mono) of the alignment tape.
3) Adjust Black Screw ② on the head base in Fig. 2-5-1 so that the output level is at a maximised.
4) Readjust Screw ① shown in Fig. 2-5-1 for maximum output.

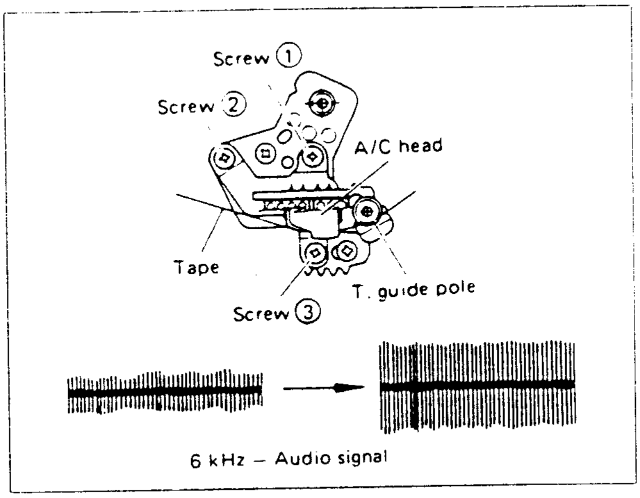


Fig. 2-5-1

2.5.2 Horizontal Position adjustment of A/C head

1) Play back the stairstep portion of the alignment tape.
2) Connect the oscilloscope to TP506 (PB FM) on the PRE/REC AMP board. Use TP511 (DRUM FF) as a trigger. Confirm that the RF envelope appears, as in Fig. 2-5-4.
3) Set the neutral manual tracking position, by simultaneously press of the (+) and (-) tracking buttons.
4) If adjustment is required, slightly loosen screws ④ and ⑤. Set A/C head positioning tool on the A/C head adjusting boss as shown in Fig. 2-5-2.
5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 2-5-4.
6) Tighten screw ⑤. Remove the tool and tighten screw ④.
7) Eject the tape and then re-insert again. Playback the Alignment Tape. Set the neutral manual tracking position. Push the tracking (+) button (count the number of pushes) until the maximum envelope is reduced to 1/2. Eject the tape and re-insert it again. Playback the Alignment Tape. Set the neutral manual tracking position. Push the tracking (-) button (count the number of pushes) until the maximum envelope is reduced to 1/2.
8) Confirm that the number of pushes are equal.

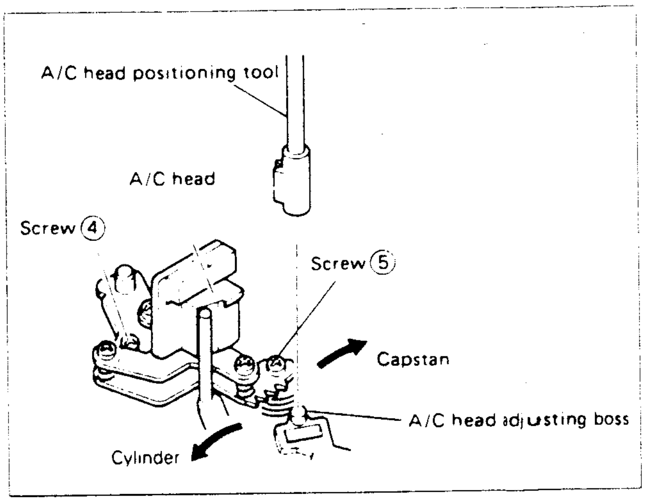


Fig. 2-5-2

2.5.3 Playback tracking

This is the most important adjustment. If incorrect, proper tracking will not be obtained in recording and playback.

Other problems that may occur are noise in parts of the picture, poor color reproduction and picture instability.

1) Play back the stairstep portion of the alignment tape.
2) Connect the oscilloscope to TP506 (PB FM) on the PRE/REC AMP board. Use TP511 (DRUM FF) as a trigger. Confirm that the envelope appears, as in Fig. 2-5-4.
3) Operate the tracking adjustment (press the tracking buttons during playback) and set for maximum playback envelope waveform.
4) If adjustment is required, first slightly loosen the set screw located at the bottom of the guide rollers. Using the guide roller adjusment tool, adjust the supply and take-up guide rollers (refer to Fig. 2-5-3) to obtain the correct waveform. Refer to Fig. 2-5-5.

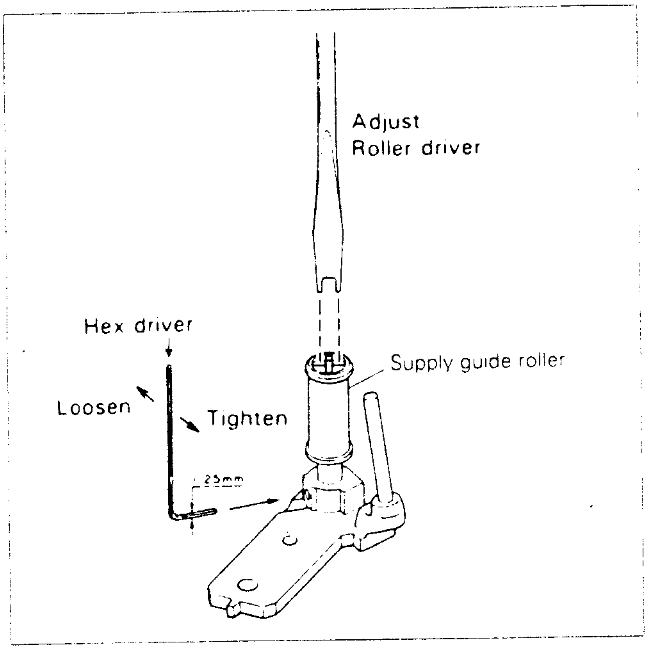

Adjust
Roller driver
Hex driver
Loosen
Tighten
2.5mm
Supply guide roller

Fig. 2-5-3

5) By pushing the tracking buttons several times, vary the FM waveform output from maximum to minimum (and vice versa) gradually, and confirm that the waveform remains flat as in Fig. 2-5-6.
6) If the FM waveform varies and is not mostly flat, adjust the height of guide roller(s) until the RF waveform is as flat as possible.
7) Eject a tape and then playback tape again, since the height of guide rollers may move during adjustment. Confirm, when pushing the tracking (+) and (-) buttons, FM waveform variation is always flat.
8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits, as in Fig. 2-5-7.
9) Perform step 2.5.1 and 2.5.2.

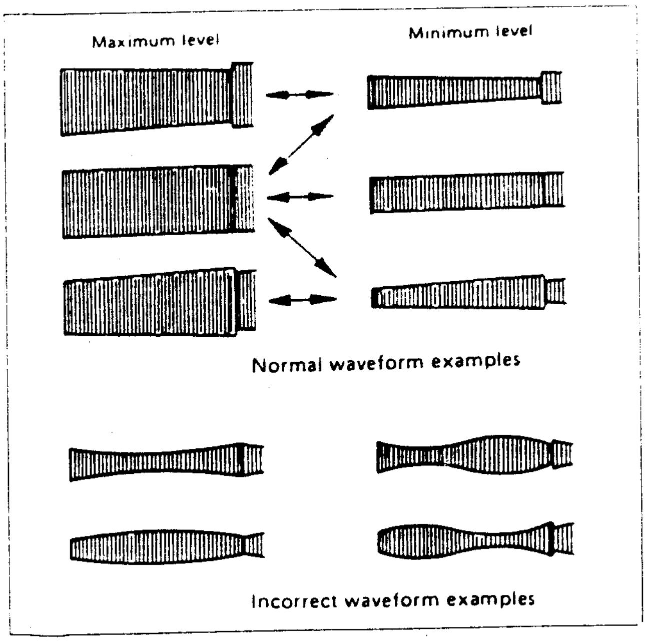

Maximum level
Minimum level
Normal waveform examples
Incorrect waveform examples

Fig. 2-5-4

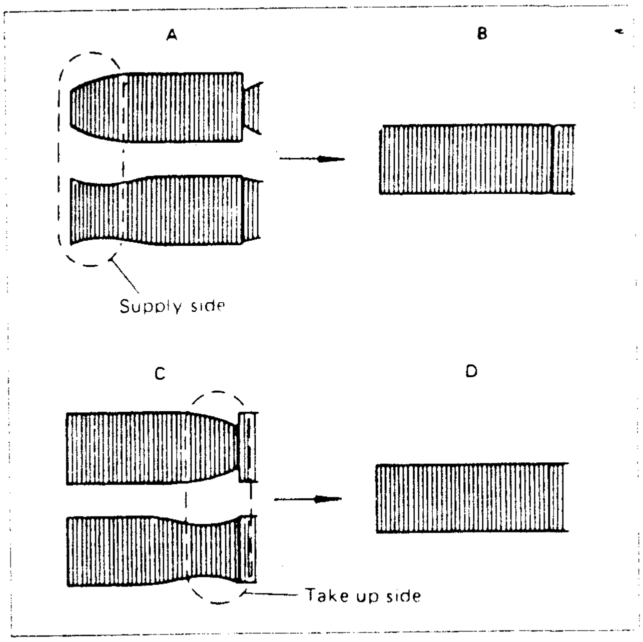

A
B
Supply side
C
D
Take up side

Fig. 2-5-5

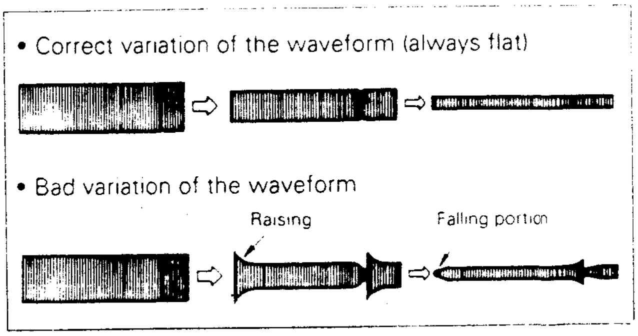

• Correct variation of the waveform (always flat)
• Bad variation of the waveform
Raising
Falling portion

Fig. 2-5-6

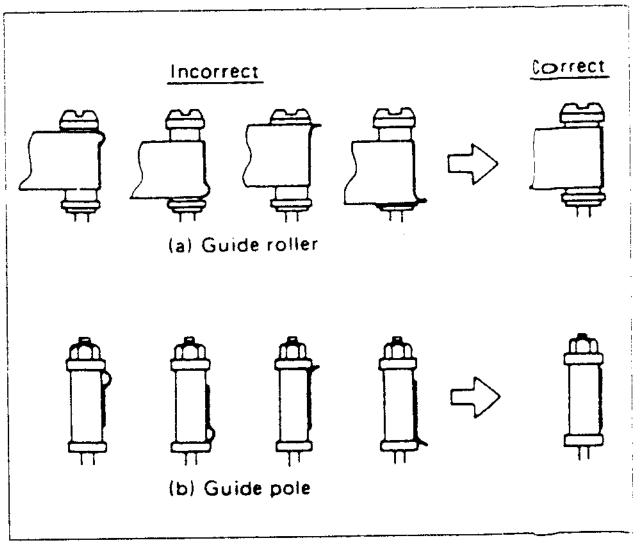

Incorrect
Correct
(a) Guide roller
(b) Guide pole

Fig. 2-5-7

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 DECK SECTION ADJUSTMENT

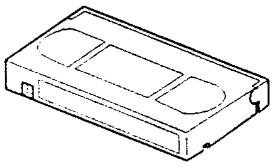
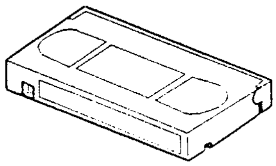
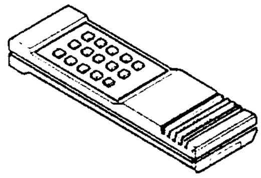
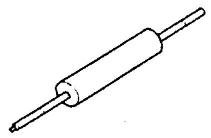
3.1.1 PRECAUTION

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipments is available.

1. **Required test equipment**

   1. Colour television or monitor
   2. Osciloscope: wide-band, dual-trace, triggered delayed sweep
   3. Frequency counter
   4. Digital voltmeter
   5. Signal generator: RF/IF sweep/maker
   6. Signal generator: PAL colour bar, stairstep
   7. Recording tape

2. **Required adjustment tools**

Alignment tape (SP) 4822 397 30262	Alignment tape (LP) 4822 397 30261
	
Presetting unit 4822 395 90915	Adjustment driver 4822 395 50262
	
∗SMC replacement tools 4822 395 90957	

∗**Note:** *It is convenient for replacing chip parts.*

3. **Colour bar signal, colour bar pattern and video sweep signal**

- Colour bar signal of pattern generator

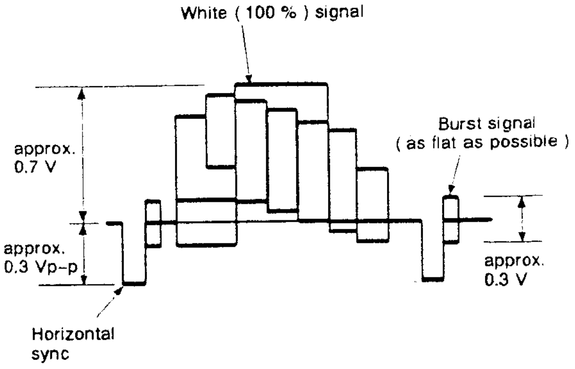

White (100 %) signal
approx. 0.7 V
Burst signal (as flat as possible)
approx. 0.3 Vp-p
approx. 0.3 V
Horizontal sync

Fig. 3-1-1 Colour bar signal of pattern generator

- Colour bar signal

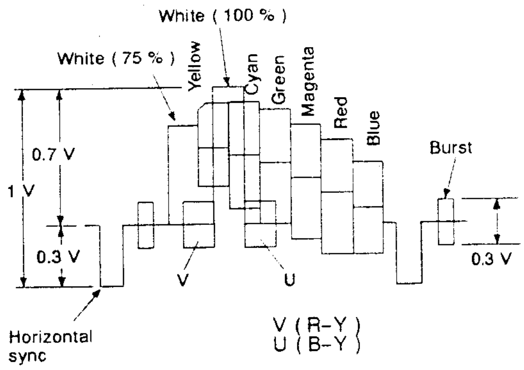

White (100 %)
White (75 %)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1 V
0.3 V
0.3 V
V
U
Horizontal sync
V (R-Y)
U (B-Y)

Fig. 3-1-2 Colour bar signal waveform

- Colour bar pattern

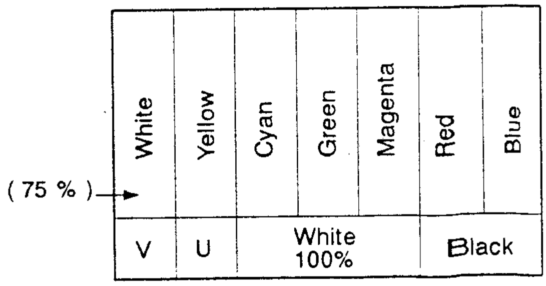

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75 %)
V
U
White 100%
Black

Fig. 3-1-3 Colour bar pattern

- Video sweep signal

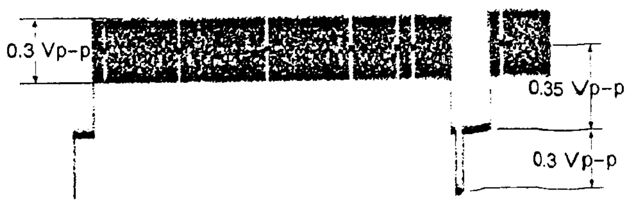

0.3 Vp-p
0.35 Vp-p
0.3 Vp-p

Fig. 3-1-4 Video sweep signal

3.1.2 SWITCHING REGULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. 5V DC output voltage

Signal	•TUNER
Mode	•SP •REC
Equipment	•Digital voltmeter
Measurement point	•TP802 (SWD 5 V) •TP801 (GND)
Adjustment part	•R855 (SW 5 V)
Specification	•5.2 ± 0.1 V DC

1) Connect a digital voltmeter to TP802 (SWD 5V) and TP801 (GND).
2) Adjust R855 for 5.2 ± 0.1 V DC.

3.1.3 SERVO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. PB switching point

Signal	•Alignment tape (MH-2) •Stairstep
Mode	•PB •Digital tracking OFF
Equipment	•Oscilloscope
Measurement point	•TP210 (VIDEO OUT)
Trigger slope (-)	•TP511 (DRUM FF) [PRE/REC AMP BOARD]
Adjustment tool	•Presetting unit
Specification	•6.5 ± 0.5 H

Note: *Use only buttons "E" and "F". Depressing other buttons during adjustment may cause adjustment errors.*

1) Connect an oscilloscope to TP210 and external trigger from TP511 (negative slope).
2) Playback the stairstep signal of the alignment tape.
3) Set the tracking control to the centre position by simultaneously pressing the (+) and (-) buttons.
4) Press the "A" button of the presetting unit.
5) Adjust by pressing "E" (+) or "F" (-) buttons of the presetting unit for position the trigger point 6.5 ± 0.5 H from V.sync.

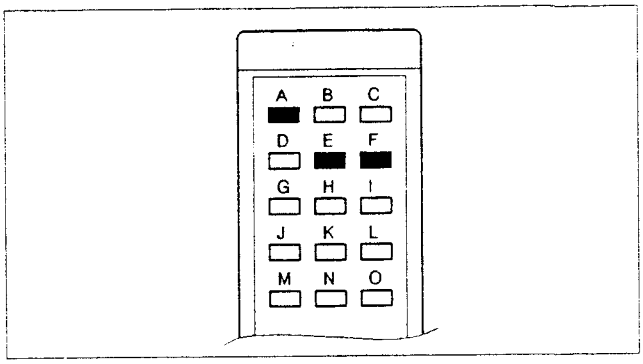


Fig. 3-1-5 Presetting unit

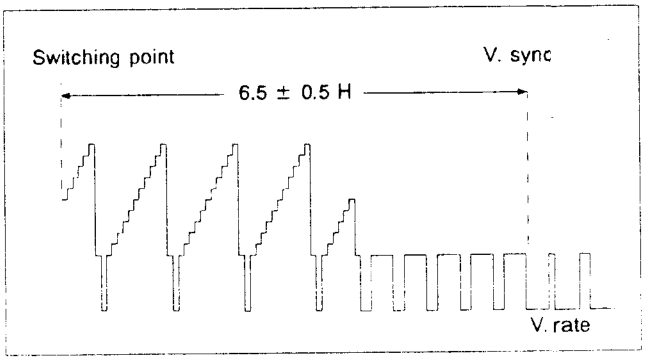


Fig. 3-1-6 PB switching point

2. Slow tracking preset

Signal	•Colour bar
Mode	•SP: VR254/55 •SP/LP: VR454/55 •REC → PB (SLOW) •Digital tracking OFF
Equipment	•TV-Monitor
Adjustment tool	•Presetting unit
Specification	•Mimimum noise

Note: *Set VCR to the mode A by remote controller.*

1) Record a colour bar signal in the SP mode.
2) Playback recorded signal on the FWD slow mode.
3) Set the tracking control to the centre position by simultaneously pressing the (+) and (-) buttons.
4) Press the "A" button of the presetting unit
5) Observe the display on a TV monitor and adjust for optimum noise condition (best tracking) by depressing "C" (+) or "B" (-) buttons of the presetting unit as required.
6) Depress the STOP button.
7) Confirm that the bar noise is not visible on the monitor in the slow mode.
8) Repeat steps 2) to 7) in REV slow mode (VR454/55 only).
9) Repeat steps 1) to 8) in LP mode (VR454/55 only).

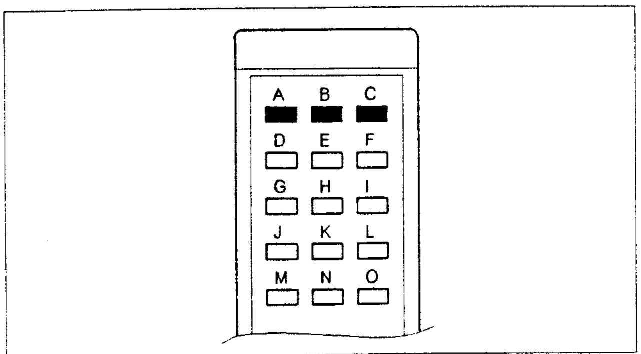


Fig. 3-1-7 Presetting unit

3.1.4 VIDEO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the VIDEO UNIT BOARD.*

Important:

Item 1. thru 6..

1) Ordinarily performing these adjustments is not required. Adjustments should be performed only if IC2 on the VIDEO UNIT BOARD has been replaced.
2) To adjust, replace fixed resistor with variable chip resistor, then adjust as required.

1. EE Y level

Signal	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP210 (VIDEO OUT) [MAIN BOARD]
Adjustment part	•R42 (EE Y LEVEL)
Specification	•2.00 ± 0.06 Vp-p (Unterminated)

1) Connect an oscilloscope to TP210.
2) Confirm that Y level is 2.00 ± 0.06 Vp-p. Unterminated.
3) If necessary, replace R42 with the variable chip resistor 4822 101 10889 and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-8.

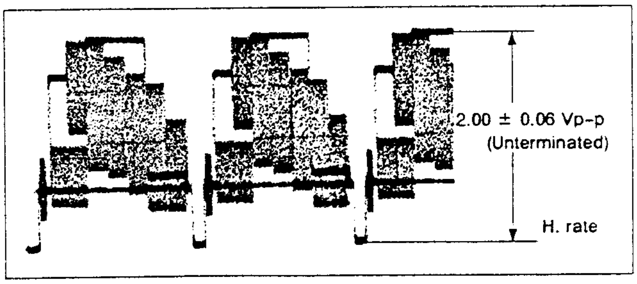


Fig. 3-1-8 EE Y level

2. White clip

Signal	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC2 pin 22
Adjustment part	•R45 (W/D CLIP)
Specification	•WHITE CLIP : 190 ± 4 % •DARK CLIP : 145 ± 8 %

1) Connect an oscilloscope to IC2 pin 22.
2) Confirm that white clip is 190 ± 4 % and dark clip is 145 ± 8 %.
3) If necessary, replace R45 with the variable chip resistor 4822 101 10851 and adjust it 190 ± 4 % white clip and 145 ± 8 % dark clip, as in Fig. 3-1-9.

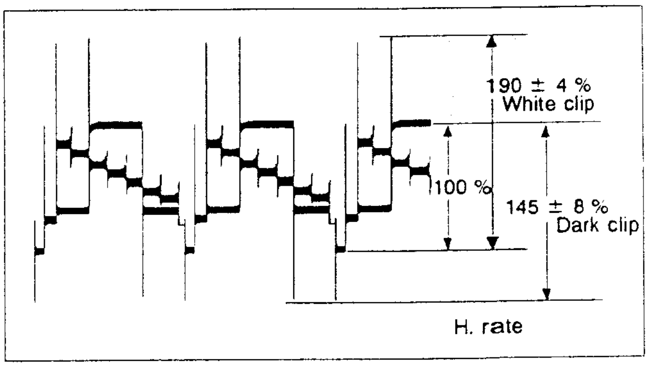


Fig. 3-1-9 White clip

3. Carrier & deviation

· Carrier

Signal	•No signal-VIDEO INPUT (Shorted RCA Phono Plug)
Mode	•EE
Equipment	•Frequency counter
Measurement point	•CN2 pin 5
Adjustment part	•R28 (CARRIER)
Specification	•3.80 ± 0.04 MHz

1) Connect the frequency counter to CN2 pin 5.
2) Confirm that frequency is 3.80 ± 0.04 MHz.
3) If necessary, replace R28 with the variable chip resistor 4822 101 10892 and adjust it for 3.80 ± 0.04 MHz.

• Deviation

Signal	•Colour bar
Mode	•REC then PB
Equipment	•Oscilloscope
Measurement point	•TP210 (VIDEO OUT) 〔MAIN BOARD〕
Adjustment part	•R29 (DEVIATION)
Specification	•2.00 ± 0.06 Vp-p (Unterminated)

4) Record and playback a colour bar signal.
5) Confirm that Y level is 2.00 ± 0.06 Vp-p unterminated.
6) If necessary, replace R29 with the variable chip resistor 4822 101 10851 and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-10.

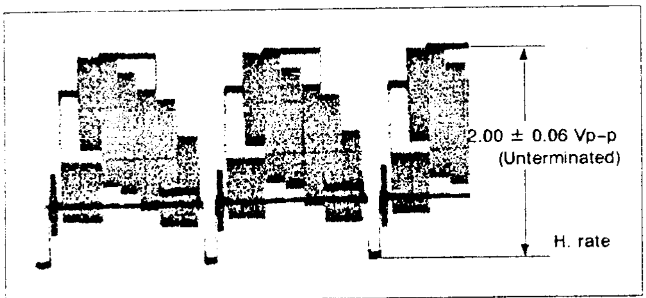


Fig. 3-1-10 Carrier & deviation

4. YNR level

Signal	•Colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC2 pin 9
Adjustment part	•R18 (N.C. BALANCE)
Specification	•Mimimum DC step difference

1) Connect an oscilloscope to IC2 pin 9.
2) Confirm that DC step difference is minimum.
3) If necessary, replace R18 with the variable chip resistor 4822 101 30673 and adjust it for minimum DC step difference, as in Fig. 3-1-11.

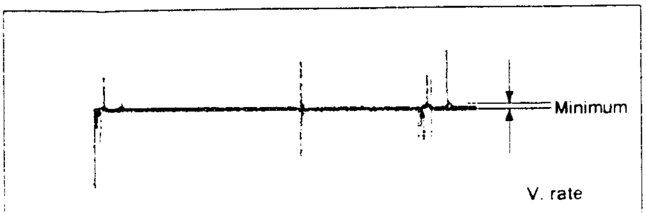


Fig. 3-1-11 YNR level

5. PB Y level

Signal	•Colour bar
Mode	•SP •REC then PB
Equipment	•Oscilloscope
Measurement point	•TP210 (VIDEO OUT) 〔MAIN BOARD〕
Adjustment part	•R25 (PB Y LEVEL)
Specification	•2.00 ± 0.06 Vp-p (Unterminated)

Note: *Confirm that procedure 3.1.4-2. is correct before performing this adjustment procedure.*

1) Connect an oscilloscope to TP210.
2) Record and playbck a colour bar signal.
3) Confirm that Y level is 2.00 ± 0.06 Vp-p unterminated.
4) If necessary, replace R25 with the variable chip resistor 4822 101 10852 and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-12.

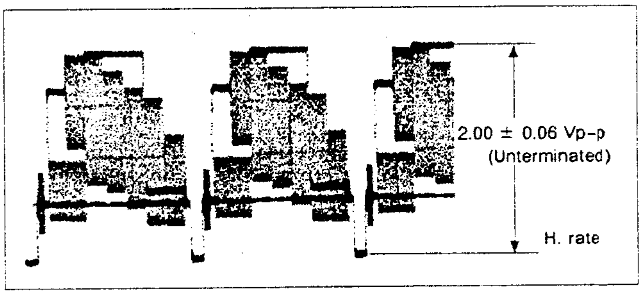


Fig. 3-1-12 PB Y level

6. REC colour level

Signal	•Colour bar
Mode	•SP •REC
Equipment	•Oscilloscope
Measurement point	•CN2 pin 11 (REC COLOUR)
Adjustment part	•R52 (REC COLOUR LEVEL)
Specification	•200 ± 10 mVp-p

1) Connect an oscilloscope to CN2 pin 11.
2) Record the colour bar signal in SP mode.
3) Confirm that colour level is 200 ± 10 mV p-p, as in Fig. 3-1-13.
4) If necessary, replace R52 with the variable chip resistor 4822 101 10891 and adjust it for 200 ± 10 mVp-p.

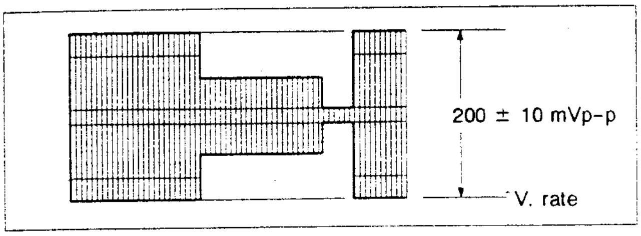


Fig. 3-1-13 REC colour level

3.1.5 TIMER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. Timer clock

Signal	•No signal
Mode	•EE •AUX
Equipment	•Frequency counter
Measurement point	•IC601 pin 64
Adjustment part	•C614 (TIMER CLOCK)
Specification	•1024.008 ± 0.001 Hz (976.5549 ± 0.0010 μsec)

1) Connect the frequency counter to IC601 pin 64 and GND.
2) Connect a short wire between IC601 pin 33 and IC601 pin 63.
3) Short the leads of capacitor C616 once in order to reset IC601.
4) Adjust C614 for 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 μsec).
5) Disconnect the short wire.

3.1.6 TUNER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the IF UNIT BOARD.*

1. RF AGC

Note: *Before the following adjustment,*

1) Connect a cable to ANT IN and terminate TV OUT with 75 ohms.

2) Set a TV channel signal generator as follows.

Video: 65 dBμ 75 Ω, colour bar 87.5 % modulation.

Audio: 55 dBμ 75 Ω, 1 kHz ± 50 kHz deviation.

〈Factory Method〉

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•Oscilloscope •TV signal generator
Measurement point	•IF UNIT
Adjustment part	•IF VR
Specification	•-8.0 dB from maximum level (with minimum noise)

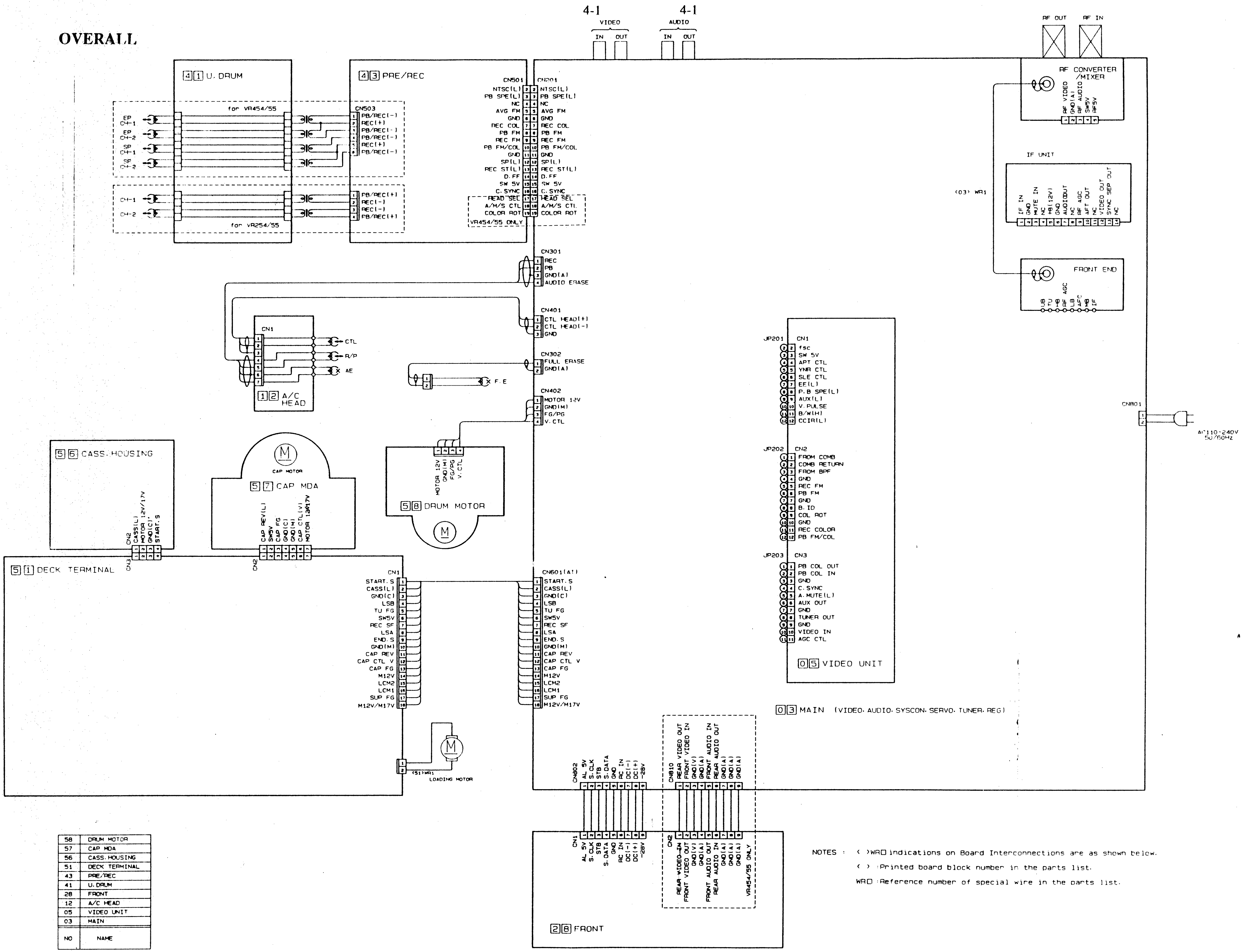
1) Connect an oscilloscope to IF terminal of U/V tuner (front end).
2) Adjust IF VR for maximum level, then adjust IF VR to reduce the IF level -8.0 dB from maximum level.

《Alternate Method》

Note: *Adjust IF VR (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.*

1) Adjust IF VR to minimize noise or streaks on the TV screen.
2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

OVERALL



4-1
VIDEO
IN OUT
4-1
AUDIO
IN OUT
RF OUT RF IN
RF CONVERTER /MIXER
RF VIDEO
GND(A)
RF AUDIO
SW5V
RF5V
IF UNIT
IF IN
GND
MUTE IN
NC
+B(12V)
GND
AUDIOOUT
NC
RF AGC
AFT OUT
NC
VIDEO OUT
SYNC SEP OUT
NC
(03) WR1
FRONT END
UB
TU
HB
RF AGC
LB
AFC
+B
IF
41 U.DRUM
for VR454/55
EP CH-1
EP CH-2
SP CH-1
SP CH-2
CH-1
CH-2
for VR254/55
43 PRE/REC
CN503
PB/REC(-)
REC(+)
PB/REC(-)
PB/REC(-)
REC(+)
PB/REC(-)
PB/REC(+)
REC(-)
REC(-)
PB/REC(+)
CN501
CN201
NTSC(L)
PB SPE(L)
NC
AVG FM
GND
REC COL
PB FM
REC FM
PB FM/COL
GND
SP(L)
REC ST(L)
D.FF
SW 5V
C.SYNC
HEAD SEL
A/H/S CTL
COLOR ROT
VR454/55 ONLY
CN301
REC
PB
GND(A)
AUDIO ERASE
CN401
CTL HEAD(+)
CTL HEAD(-)
GND
CN302
FULL ERASE
GND(A)
F.E
CN402
MOTOR 12V
GND(M)
FG/PG
V.CTL
CN1
CTL
R/P
AE
12 A/C HEAD
56 CASS.HOUSING
CN2
CASS(L)
MOTOR 12V/17V
GND(C)
START.S
CN3
CAP MOTOR
57 CAP MDA
CAP REV(L)
SW5V
CAP FG
GND(C)
GND(M)
CAP CTL(V)
MOTOR 12V/17V
CN2
58 DRUM MOTOR
51 DECK TERMINAL
CN1
CN601(A1)
START.S
CASS(L)
GND(C)
LSB
TU FG
SW5V
REC SF
LSA
END.S
GND(M)
CAP REV
CAP CTL V
CAP FG
M12V
LCM2
LCM1
SUP FG
M12V/M17V
(51)WR1
LOADING MOTOR
JP201 CN1
fsc
SW 5V
APT CTL
YNR CTL
SLE CTL
EE(L)
P.B SPE(L)
AUX(L)
V.PULSE
B/W(H)
CCIR(L)
JP202 CN2
FROM COMB
COMB RETURN
FROM BPF
GND
REC FM
PB FM
GND
B.ID
COL ROT
GND
REC COLOR
PB FM/COL
JP203 CN3
PB COL OUT
PB COL IN
GND
C.SYNC
A.MUTE(L)
AUX OUT
GND
TUNER OUT
GND
VIDEO IN
AGC CTL
05 VIDEO UNIT
03 MAIN (VIDEO·AUDIO·SYSCON·SERVO·TUNER·REG)
CN801
AC110-240V 50/60Hz
CN802
AL 5V
S.CLK
STB
S.DATA
GND
RC IN
DC(-)
DC(+)
-28V
CN810
REAR VIDEO OUT
FRONT VIDEO IN
GND(V)
GND(A)
FRONT AUDIO IN
REAR AUDIO OUT
GND(A)
GND(A)
GND(A)
CN1
CN2
REAR VIDEO IN
FRONT VIDEO OUT
FRONT AUDIO OUT
REAR AUDIO IN
VR454/55 ONLY
28 FRONT

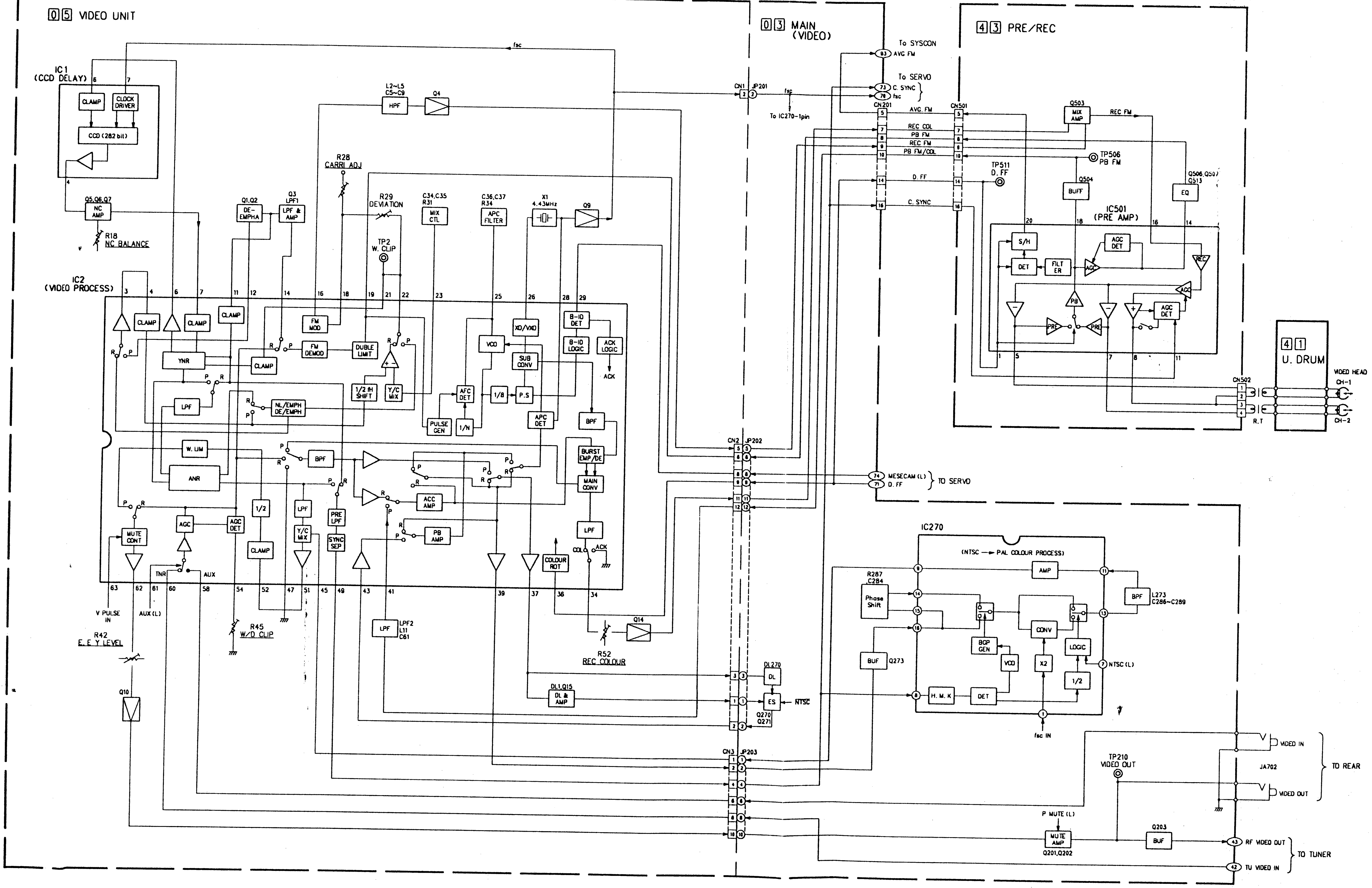
NO	NAME
58	DRUM MOTOR
57	CAP MDA
56	CASS.HOUSING
51	DECK TERMINAL
43	PRE/REC
41	U.DRUM
28	FRONT
12	A/C HEAD
05	VIDEO UNIT
03	MAIN

NOTES : ( )WR□ indications on Board Interconnections are as shown below.

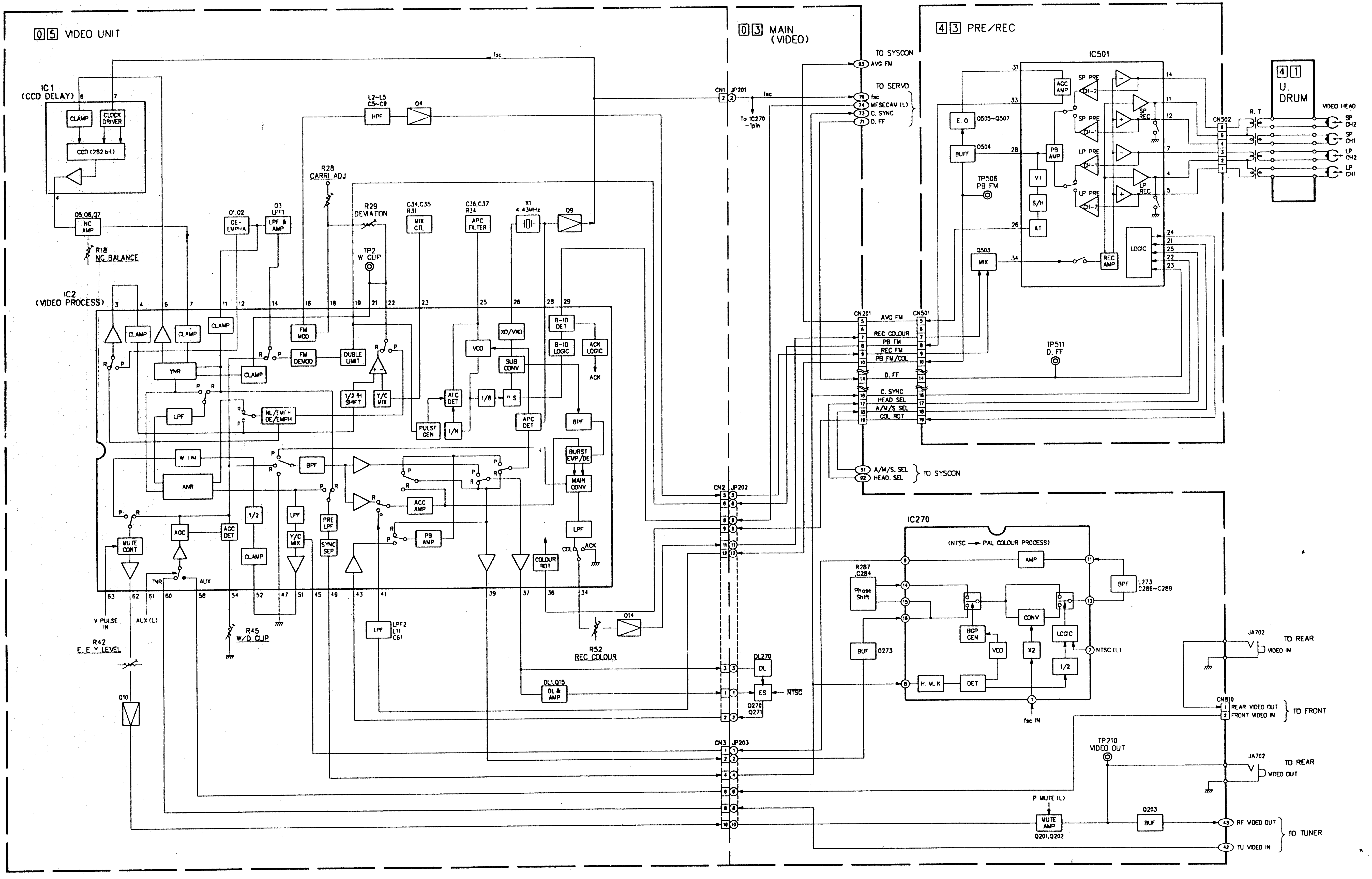
( ) :Printed board block number in the parts list.

WR□ :Reference number of special wire in the parts list.

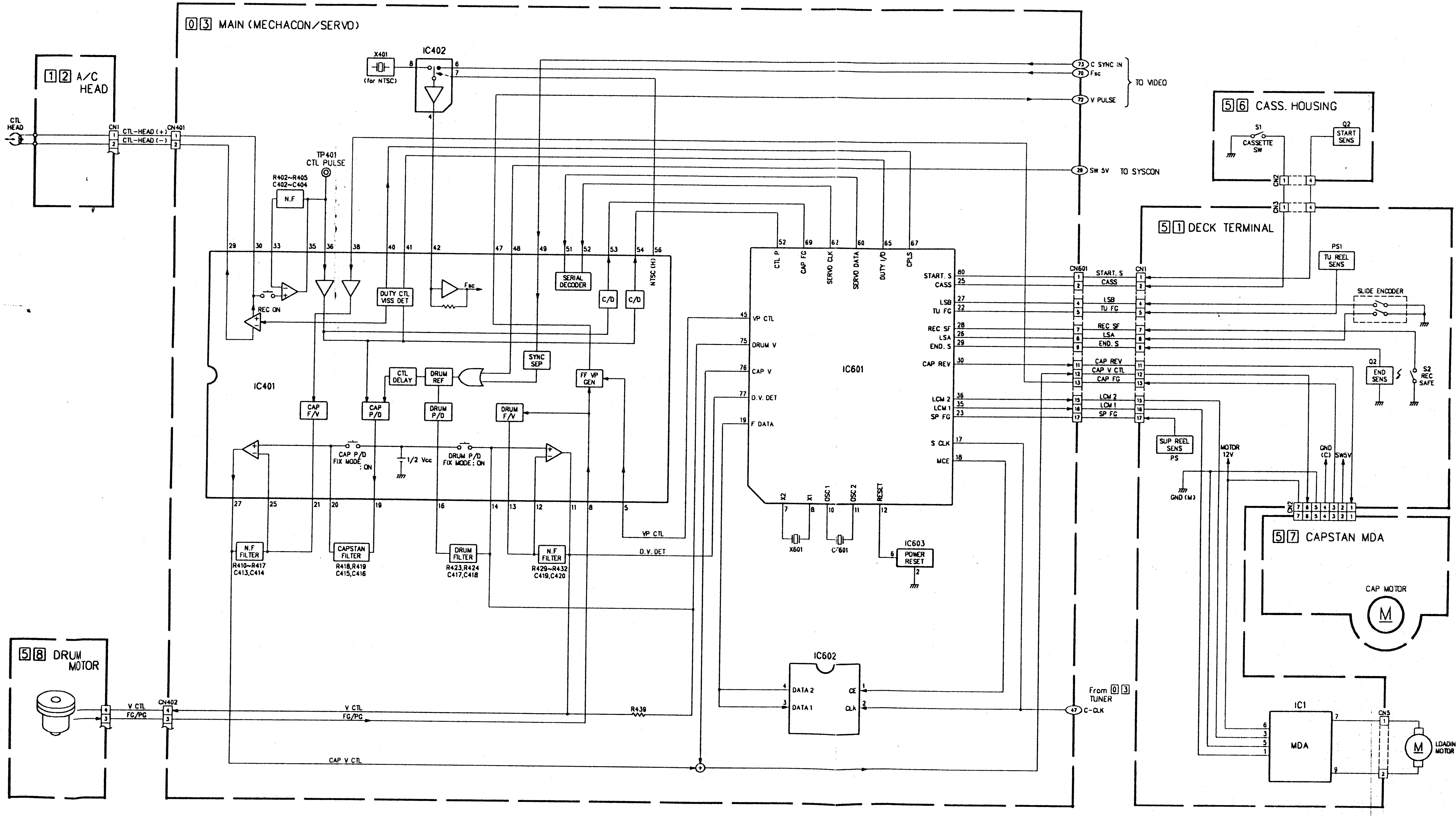
VIDEO BLOCK DIAGRAM (for VR254/55)


05 VIDEO UNIT
03 MAIN (VIDEO)
43 PRE/REC
41 U. DRUM
IC1 (CCD DELAY)
CLAMP
CLOCK DRIVER
CCD (282 bit)
Q5,Q6,Q7
NC AMP
R18 NC BALANCE
Q1,Q2
DE-EMPHA
Q3 LPF1
LPF & AMP
L2~L5 C5~C9
HPF
Q4
R28 CARRI ADJ
R29 DEVIATION
TP2 W. CLIP
C34,C35 R31
MIX CTL
C36,C37 R34
APC FILTER
X1 4.43MHz
Q9
fsc
IC2 (VIDEO PROCESS)
CLAMP
YNR
LPF
NL/EMPH DE/EMPH
FM MOD
FM DEMOD
DUBLE LIMIT
1/2 fH SHIFT
Y/C MIX
VCO
XO/VXO
SUB CONV
AFC DET
1/8
P.S
PULSE GEN
1/N
APC DET
8-ID DET
8-ID LOGIC
ACK LOGIC
ACK
BPF
BURST EMP/DE
MAIN CONV
W. LIM
ANR
BPF
ACC AMP
PB AMP
1/2
LPF
Y/C MIX
PRE LPF
SYNC SEP
CLAMP
AGC
AGC DET
MUTE CONT
TNR
AUX
LPF
COLOUR ROT
COL
V PULSE IN
AUX (L)
R42 E.E Y LEVEL
R45 W/D CLIP
Q10
LPF2 L11 C61
Q14
R52 REC COLOUR
DL1,Q15
DL & AMP
DL270
DL
ES
NTSC
Q270 Q271
CN1 JP201
CN2 JP202
CN3 JP203
To IC270-1pin
To SYSCON
AVG FM
To SERVO
C. SYNC
fsc
CN201
CN501
AVG. FM
REC COL
PB FM
REC FM
PB FM/COL
D. FF
C. SYNC
TP511 D. FF
Q503
MIX AMP
REC FM
TP506 PB FM
Q504
BUFF
Q506,Q507 Q513
EQ
IC501 (PRE AMP)
S/H
DET
FILT ER
AGC
AGC DET
REC
ACC
PB
PRE
R.T
CN502
VIDEO HEAD
CH-1
CH-2
MESECAM (L)
D. FF
TO SERVO
IC270
(NTSC → PAL COLOUR PROCESS)
AMP
R287 C284
Phase Shift
BPF
L273 C286~C289
CONV
BGP GEN
LOGIC
VCO
X2
NTSC (L)
1/2
BUF
Q273
H. M. K
DET
fsc IN
TP210 VIDEO OUT
VIDEO IN
JA702
VIDEO OUT
TO REAR
P MUTE (L)
MUTE AMP
Q201,Q202
Q203
BUF
RF VIDEO OUT
TU VIDEO IN
TO TUNER

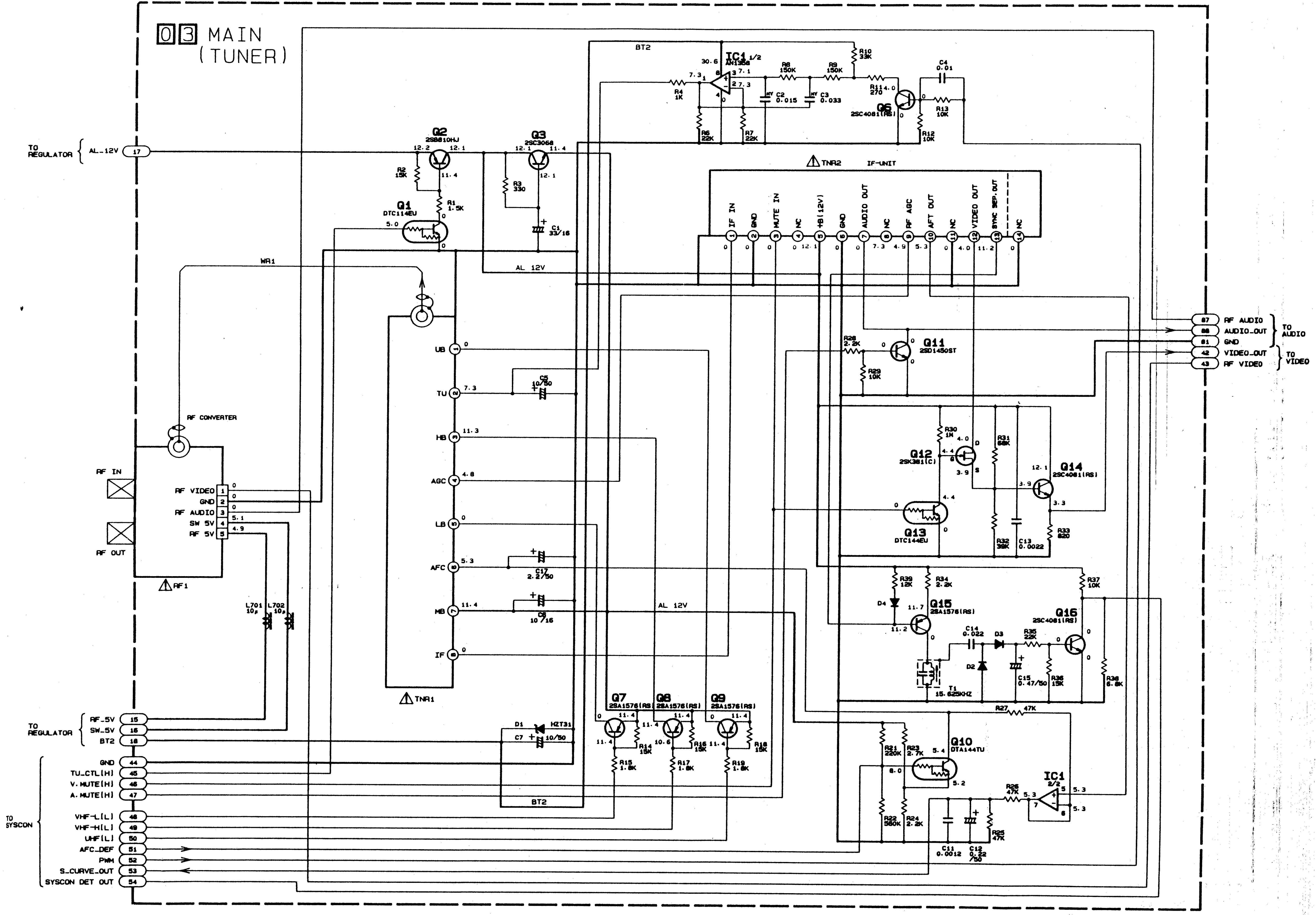
VIDEO BLOCK DIAGRAM (for VR454/55)


05 VIDEO UNIT
03 MAIN (VIDEO)
43 PRE/REC
41 U. DRUM
IC1 (CCD DELAY)
CLAMP
CLOCK DRIVER
CCD (282 bit)
Q5,Q6,Q7 NC AMP
R18 NC BALANCE
IC2 (VIDEO PROCESS)
Q1,Q2 DE-EMPHA
Q3 LPF1 LPF & AMP
L2~L5 C5~C9 HPF
Q4
R28 CARRI ADJ
R29 DEVIATION
TP2 W. CLIP
C34,C35 R31 MIX CTL
C36,C37 R34 APC FILTER
X1 4.43MHz
Q9
fsc
YNR
LPF
FM MOD
FM DEMOD
DUBLE LIMIT
1/2 H SHIFT
Y/C MIX
NL/EMP DE/EMPH
VCO
XO/VXO
SUB CONV
AFC DET
1/8
P.S
PULSE GEN
1/N
APC DET
B-ID DET
B-ID LOGIC
ACK LOGIC
ACK
BPF
BURST EMP/DE
MAIN CONV
W LIM
ANR
ACC AMP
PB AMP
MUTE CONT
AGC
AGC DET
1/2
Y/C MIX
PRE LPF
SYNC SEP
COLOUR ROT
COL
AUX
TNR
V PULSE IN
AUX (L)
R42 E. E Y LEVEL
Q10
R45 W/D CLIP
LPF2 L11 C61
R52 REC COLOUR
Q14
DL1,Q15 DL & AMP
DL270 DL
ES
NTSC
Q270 Q271
CN1 JP201
CN2 JP202
CN3 JP203
To IC270 -1pin
TO SYSCON
AVG FM
TO SERVO
fsc
MESECAM (L)
C. SYNC
D. FF
CN201
CN501
REC COLOUR
PB FM
REC FM
PB FM/COL
C. SYNC
HEAD SEL
A/M/S SEL
COL ROT
A/M/S. SEL
HEAD. SEL
TO SYSCON
IC501
E. Q Q505~Q507
BUFF Q504
TP506 PB FM
VI
S/H
AT
Q503 MIX
ACC AMP
SP PRE
SP REC
LP PRE
LP REC
CH-1
CH-2
PB AMP
REC AMP
LOGIC
TP511 D. FF
CN502
R. T
VIDEO HEAD
SP CH2
SP CH1
LP CH2
LP CH1
IC270
(NTSC → PAL COLOUR PROCESS)
AMP
R287 C284 Phase Shift
BPF L273 C286~C289
CONV
BGP GEN
VCO
X2
LOGIC
1/2
BUF Q273
H. M. K
DET
NTSC (L)
fsc IN
JA702 TO REAR VIDEO IN
CN810
REAR VIDEO OUT
FRONT VIDEO IN
TO FRONT
TP210 VIDEO OUT
JA702 TO REAR VIDEO OUT
P MUTE (L)
MUTE AMP Q201,Q202
Q203 BUF
RF VIDEO OUT
TU VIDEO IN
TO TUNER

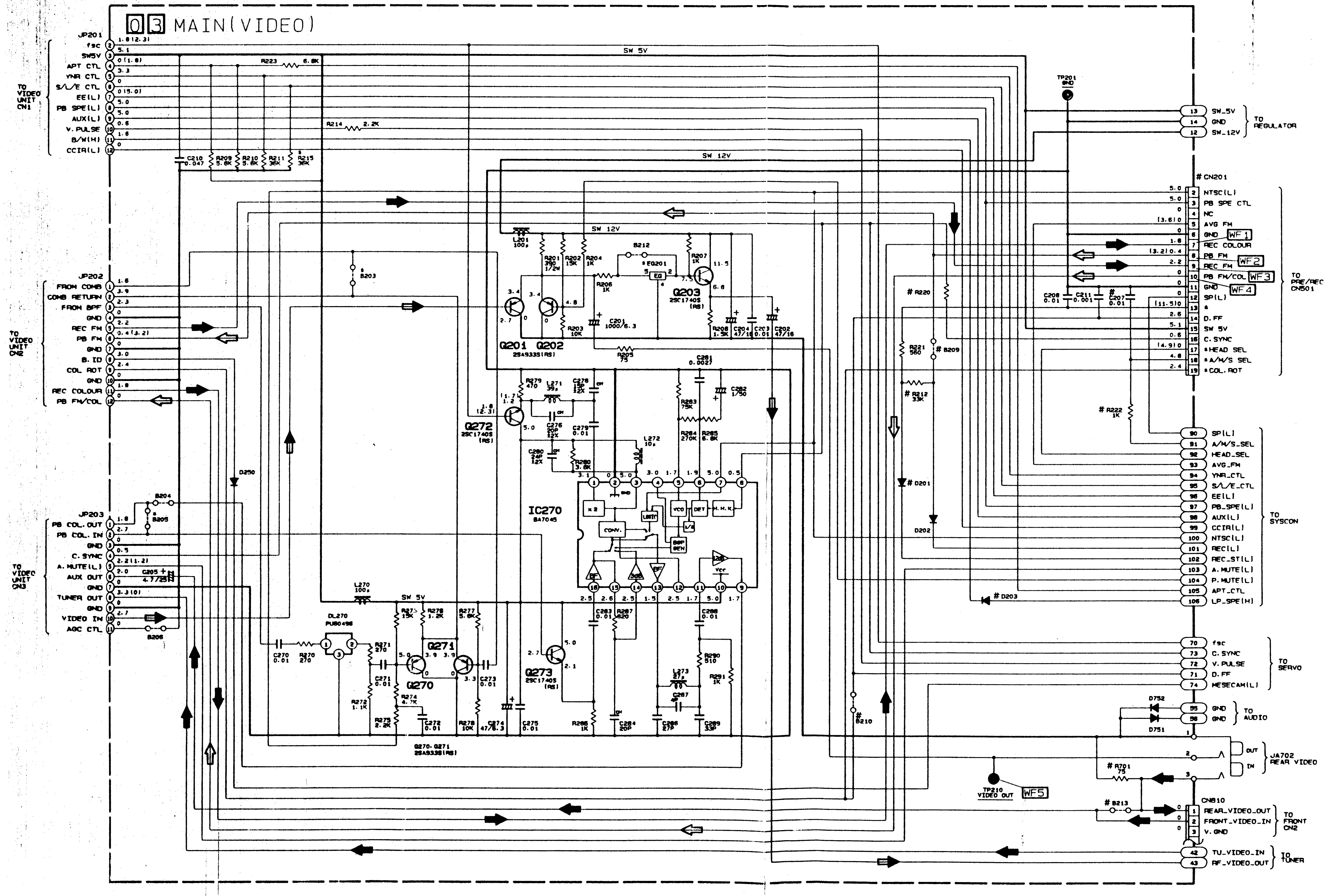
SYSCON/SERVO BLOCK DIAGRAM


03 MAIN (MECHACON/SERVO)
12 A/C HEAD
CTL HEAD
CN1
CN401
CTL-HEAD (+)
CTL-HEAD (−)
X401
(for NTSC)
IC402
TP401 CTL PULSE
R402~R405 C402~C404
N.F
REC ON
DUTY CTL VISS DET
Fsc
SERIAL DECODER
C/D
C/D
NTSC (H)
SYNC SEP
CTL DELAY
DRUM REF
FF VP GEN
IC401
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
CAP P/D FIX MODE : ON
1/2 Vcc
DRUM P/D FIX MODE : ON
N.F FILTER
R410~R417 C413,C414
CAPSTAN FILTER
R418,R419 C415,C416
DRUM FILTER
R423,R424 C417,C418
N.F FILTER
R429~R432 C419,C420
VP CTL
D.V. DET
IC601
CTL P
CAP FG
SERVO CLK
SERVO DATA
DUTY I/O
CPLS
START. S
CASS
LSB
TU FG
REC SF
LSA
END. S
CAP REV
LCM 2
LCM 1
SP FG
S CLK
MCE
VP CTL
DRUM V
CAP V
D.V. DET
F DATA
X2
X1
OSC 1
OSC 2
RESET
X601
CF601
IC603
POWER RESET
IC602
DATA 2
DATA 1
CE
CLK
C SYNC IN
Fsc
V PULSE
TO VIDEO
SW 5V
TO SYSCON
From 03 TUNER
C-CLK
58 DRUM MOTOR
V CTL
FG/PG
CN402
V CTL
FG/PG
R438
CAP V CTL
56 CASS. HOUSING
S1
CASSETTE SW
Q2
START SENS
CN2
CN3
51 DECK TERMINAL
PS1
TU REEL SENS
SLIDE ENCODER
CN601
CN1
START. S
CASS
LSB
TU FG
REC SF
LSA
END. S
CAP REV
CAP V CTL
CAP FG
LCM 2
LCM 1
SP FG
Q2
END SENS
S2
REC SAFE
SUP REEL SENS
PS
MOTOR 12V
GND (M)
GND (C)
SW5V
CN2
57 CAPSTAN MDA
CAP MOTOR
M
IC1
MDA
CN5
M
LOADING MOTOR

MAIN (TUNER) SCHEMATIC DIAGRAM


03 MAIN (TUNER)
TO REGULATOR
AL_12V 17
Q2 2SB810HJ
Q3 2SC3068
Q1 DTC114EU
R1 1.5K
R2 15K
R3 330
C1 33/16
WR1
AL 12V
BT2
IC1 1/2 AN1358
R4 1K
R6 22K
R7 22K
R8 150K
R9 150K
R10 33K
R11 270
R12 10K
R13 10K
C2 0.015
C3 0.033
C4 0.01
Q6 2SC4081(RS)
TNR2 IF-UNIT
IF IN
GND
MUTE IN
NC
+B(12V)
AUDIO OUT
RF AGC
AFT OUT
VIDEO OUT
SYNC SEP. OUT
RF CONVERTER
RF IN
RF OUT
RF VIDEO
GND
RF AUDIO
SW 5V
RF 5V
RF1
L701 10μ
L702 10μ
UB
TU
HB
AGC
LB
AFC
MB
IF
TNR1
C5 10/50
C17 2.2/50
C6 10/16
D1 HZT31
C7 10/50
Q7 2SA1576(RS)
Q8 2SA1576(RS)
Q9 2SA1576(RS)
R14 15K
R15 1.8K
R16 15K
R17 1.8K
R18 15K
R19 1.8K
Q11 2SD1450ST
R28 2.2K
R29 10K
Q12 2SK381(C)
R30 1M
R31 68K
R32 39K
C13 0.0022
R33 820
Q13 DTC144EU
Q14 2SC4081(RS)
Q15 2SA1576(RS)
R39 12K
R34 2.2K
D4
C14 0.022
D3
D2
R35 22K
C15 0.47/50
R36 15K
T1 15.625KHZ
Q16 2SC4081(RS)
R37 10K
R38 6.8K
R27 47K
Q10 DTA144TU
R21 220K
R22 560K
R23 2.7K
R24 2.2K
R25 47K
R26 47K
C11 0.0012
C12 0.22/50
IC1 2/2
87 RF AUDIO
88 AUDIO_OUT
81 GND
42 VIDEO_OUT
43 RF VIDEO
TO AUDIO
TO VIDEO
TO REGULATOR
RF_5V 15
SW_5V 16
BT2 18
TO SYSCON
GND 44
TU_CTL(H) 45
V.MUTE(H) 46
A.MUTE(H) 47
VHF-L(L) 48
VHF-H(L) 49
UHF(L) 50
AFC_DEF 51
PWM 52
S_CURVE_OUT 53
SYSCON DET OUT 54

MAIN (VIDEO) SCHEMATIC DIAGRAM


03 MAIN(VIDEO)
JP201
fsc
SW5V
APT CTL
YNR CTL
S/L/E CTL
EE(L)
PB SPE(L)
AUX(L)
V. PULSE
B/W(H)
CCIR(L)
TO VIDEO UNIT CN1
SW 5V
SW 12V
JP202
FROM COMB
COMB RETURN
FROM BPF
GND
REC FM
PB FM
B. ID
COL ROT
REC COLOUR
PB FM/COL
TO VIDEO UNIT CN2
JP203
PB COL. OUT
PB COL. IN
C. SYNC
A. MUTE(L)
AUX OUT
TUNER OUT
VIDEO IN
AGC CTL
TO VIDEO UNIT CN3
Q201 Q202
2SA933S(RS)
Q203
2SC1740S (RS)
Q272
2SC1740S (RS)
Q273
2SC1740S (RS)
Q270 Q271
Q270·Q271 2SA933S(RS)
IC270
BA7045
DL270
PU8049S
TP201 GND
TP210 VIDEO OUT
WF1
WF2
WF3
WF4
WF5
SW_5V
GND
SW_12V
TO REGULATOR
# CN201
NTSC(L)
PB SPE CTL
NC
AVG FM
REC COLOUR
PB FM
REC FM
PB FM/COL
SP(L)
D. FF
SW 5V
C. SYNC
*HEAD SEL
*A/N/S SEL
*COL. ROT
TO PRE/REC CN501
SP(L)
A/N/S_SEL
HEAD_SEL
AVG_FM
YNR_CTL
S/L/E_CTL
EE(L)
PB_SPE(L)
AUX(L)
CCIR(L)
NTSC(L)
REC(L)
REC_ST(L)
A. MUTE(L)
P. MUTE(L)
APT_CTL
LP_SPE(H)
TO SYSCON
fsc
C. SYNC
V. PULSE
D. FF
MESECAM(L)
TO SERVO
GND
TO AUDIO
JA702 REAR VIDEO
OUT
IN
CN810
REAR_VIDEO_OUT
FRONT_VIDEO_IN
V. GND
TO FRONT CN2
TU_VIDEO_IN
RF_VIDEO_OUT
TO TUNER

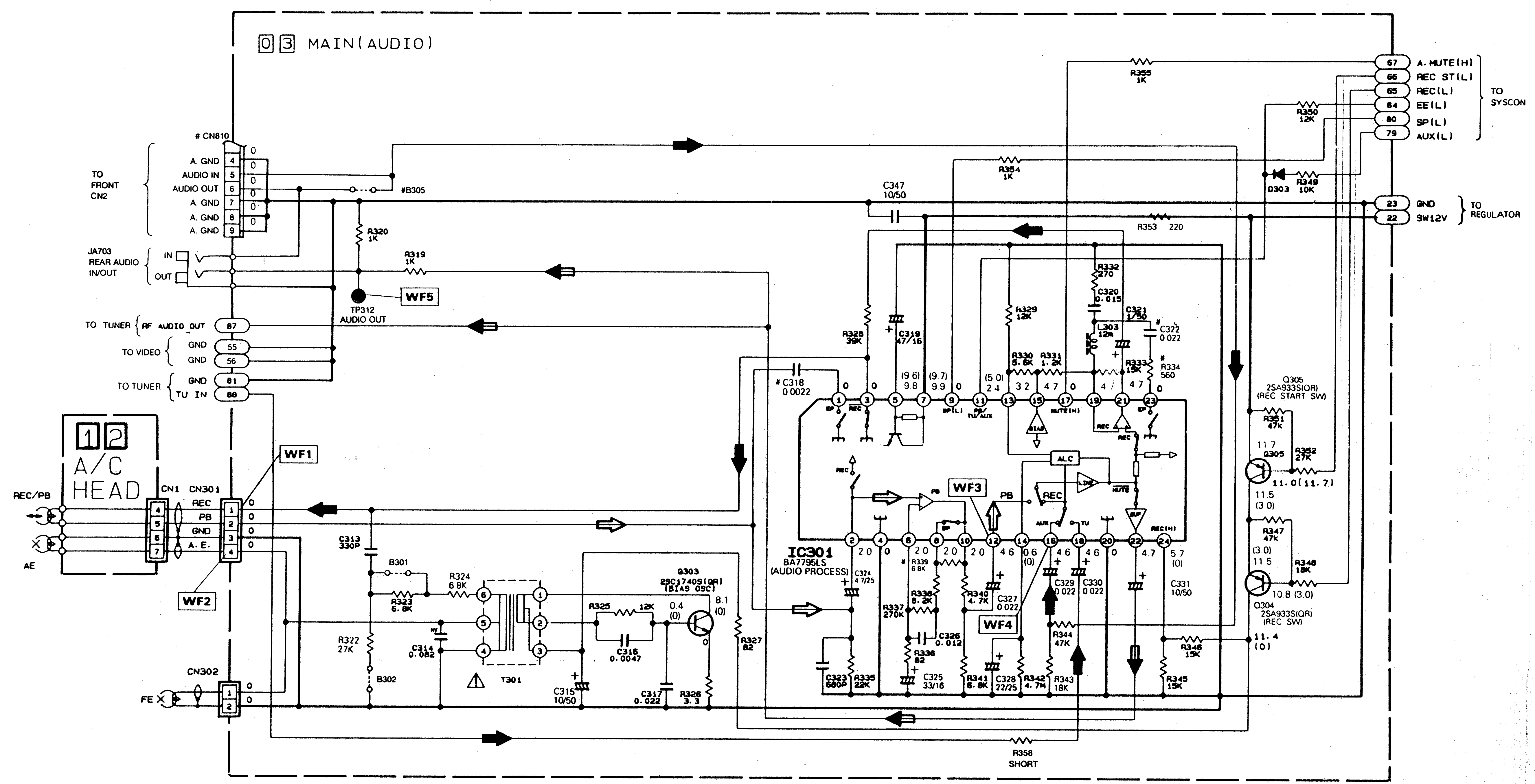
NOTE1: '*' MARK ELEMENTS ARE NOT MOUNTED.

NOTE2: COMPARISON CHART OF MODELS & MARKS '#'

REF. NO	MODELS	
	VR454/55	VR254/55
D201	SHORT	USED
D203	SHORT	OPEN
R212	OPEN	USED
R220	0Ω	100KΩ
R222	USED	OPEN
C207	USED	OPEN
B209	USED	OPEN
B210	OPEN	USED
B213	OPEN	USED
CN810	USED	OPEN
CN201-13	REC ST(L)	REC CTL
CN201-17	USED	OPEN
CN201-18	USED	OPEN
CN201-19	USED	OPEN
R701	OPEN	USED

NOTE3: ALL NPN TYPE TRANSISTOR ARE 2SC1740(RS).
ALL PNP TYPE TRANSISTOR ARE 2SA933S(RS)

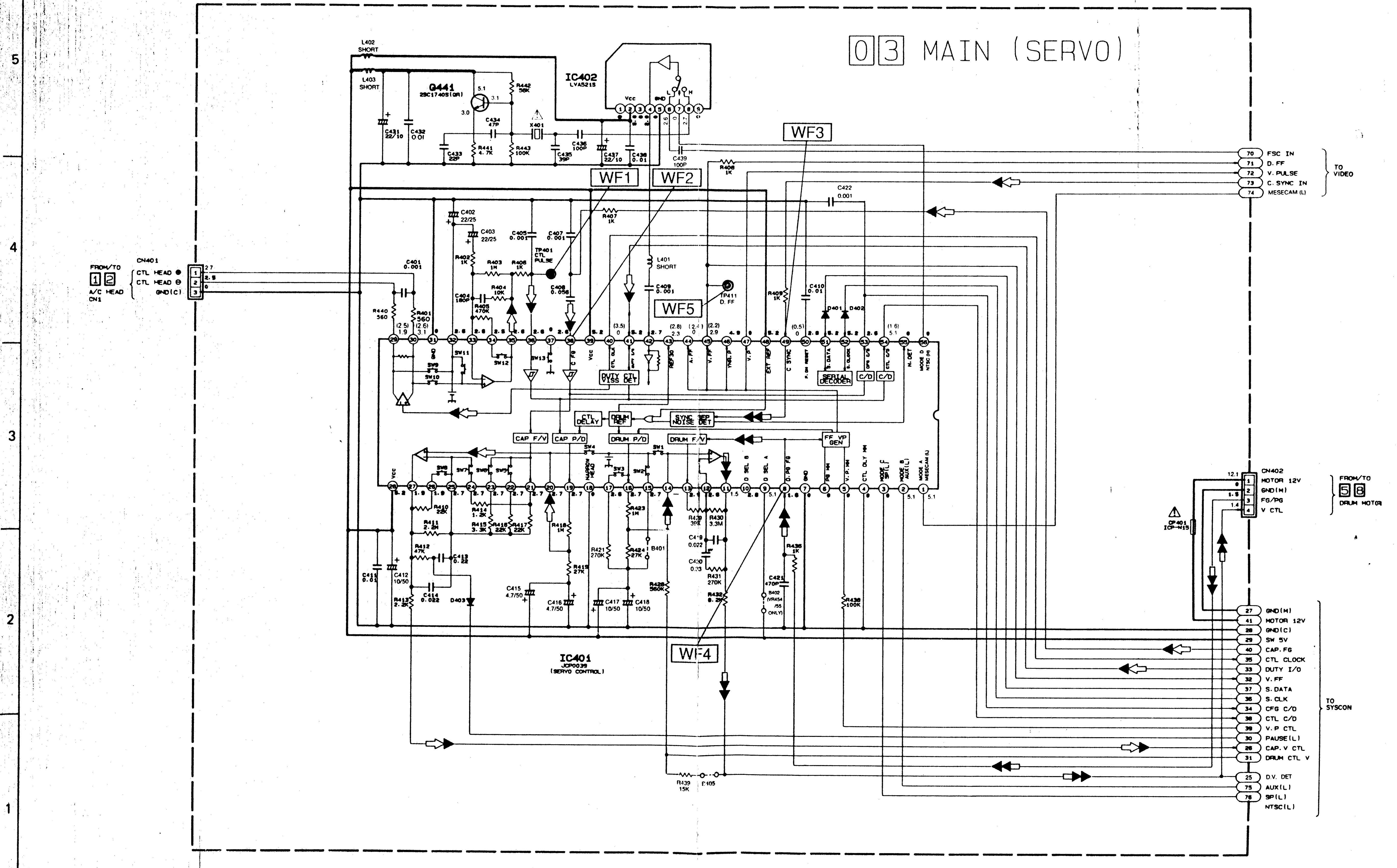
MAIN (AUDIO) SCHEMATIC DIAGRAM


03 MAIN(AUDIO)
12 A/C HEAD
REC/PB
AE
FE
CN1
CN301
REC
PB
GND
A. E.
CN302
# CN810
A. GND
AUDIO IN
AUDIO OUT
A. GND
A. GND
A. GND
TO FRONT CN2
JA703 REAR AUDIO IN/OUT
IN
OUT
TO TUNER
RF AUDIO OUT
TO VIDEO
GND
GND
TO TUNER
GND
TU IN
#B305
R320 1K
R319 1K
TP312 AUDIO OUT
WF1
WF2
WF3
WF4
WF5
C313 330P
B301
B302
R324 6.8K
R323 6.8K
R322 27K
C314 0.082
T301
C315 10/50
R325 12K
C316 0.0047
C317 0.022
R326 3.3
R327 82
Q303 2SC1740S(QR) (BIAS OSC)
IC301
BA7795LS
(AUDIO PROCESS)
ALC
REC
PB
MUTE
C347 10/50
R354 1K
R355 1K
R353 220
R328 39K
C319 47/16
#C318 0.0022
R329 12K
R330 5.6K
R331 1.2K
R332 270
C320 0.015
L303 12m
C321 1/50
#C322 0.022
R333 15K
# R334 560
C323 680P
R335 22K
C324 4.7/25
# R339 6.8K
R337 270K
R338 8.2K
R336 82
C326 0.012
C325 33/16
R340 4.7K
C327 0.022
R341 6.8K
C328 22/25
R342 4.7M
R343 18K
R344 47K
C329 0.022
C330 0.022
C331 10/50
R346 15K
R345 15K
R358 SHORT
D303
R349 10K
R350 12K
Q305 2SA933S(QR) (REC START SW)
R351 47K
R352 27K
Q304 2SA933S(QR) (REC SW)
R347 47K
R348 18K
67 A. MUTE(H)
66 REC ST(L)
65 REC(L)
64 EE(L)
80 SP(L)
79 AUX(L)
TO SYSCON
23 GND
22 SW12V
TO REGULATOR
A
B
C
D
E
F
G
1
2
3
4
5

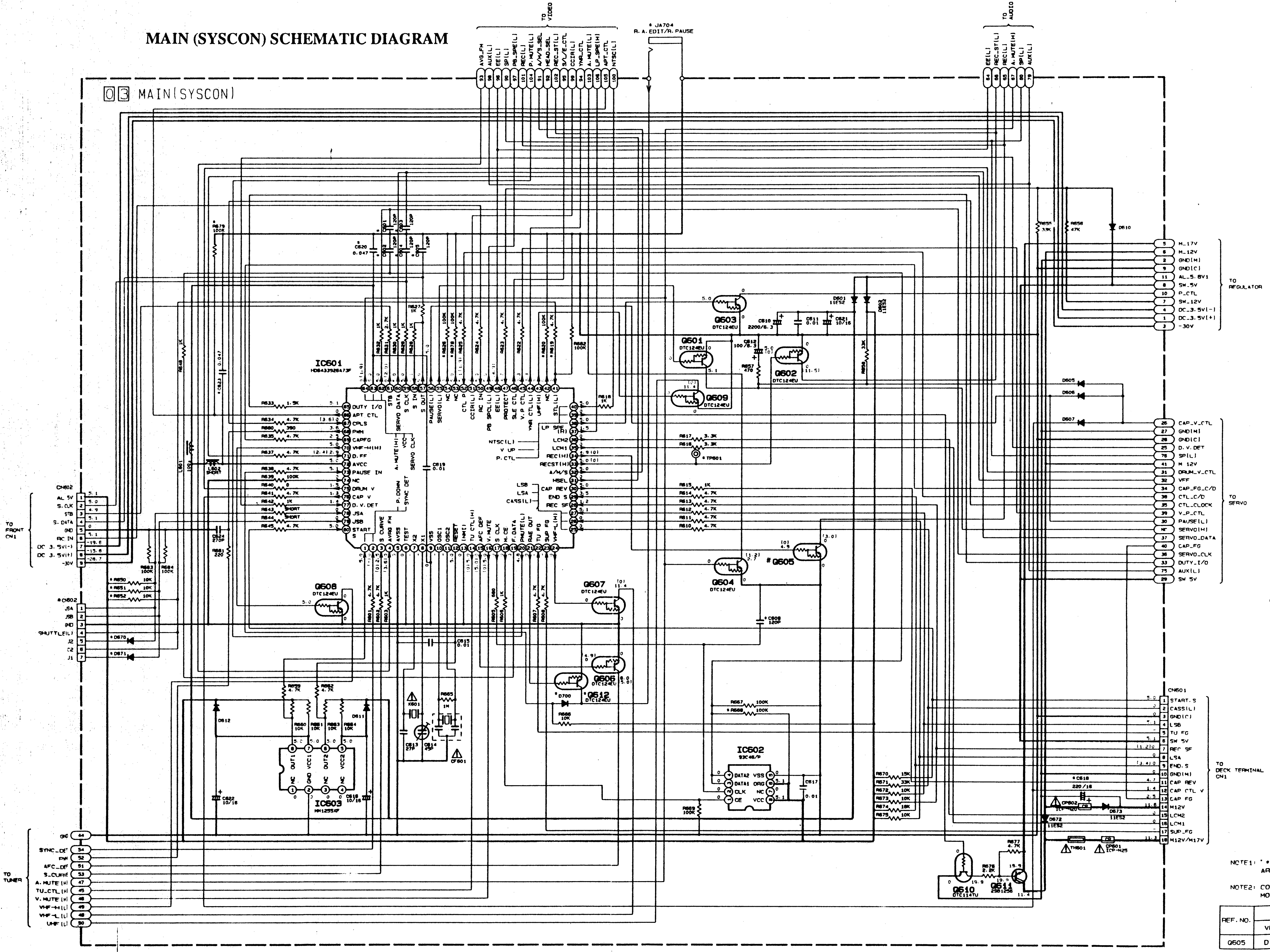
NOTE: COMPARISON CHART OF MODELS & MARKS "#".

REF. No.	MODELS	
	VR454/55	VR254/55
R334	USED	OPEN
R339	USED	OPEN
C318	USED	OPEN
C322	USED	OPEN
B305	OPEN	USED
CN810	USED	OPEN

MAIN (SERVO) SCHEMATIC DIAGRAM


03 MAIN (SERVO)
IC402
LVA521S
Q441
2SC1740S(QR)
IC401
JCP0039
(SERVO CONTROL)
L402 SHORT
L403 SHORT
L401 SHORT
WF1
WF2
WF3
WF4
WF5
TP401 CTL PULSE
TP411 D. FF
X401
D401
D402
D403
CN401
FROM/TO
12
A/C HEAD
CN1
CTL HEAD ⊕
CTL HEAD ⊖
GND(C)
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
CTL DELAY
DRUM REF
SYNC SEP NOISE DET
DUTY CTL VISS DET
SERIAL DECODER
FF VP GEN
C/D
70 FSC IN
71 D. FF
72 V. PULSE
73 C. SYNC IN
74 MESECAM (L)
TO VIDEO
CN402
1 MOTOR 12V
2 GND(M)
3 FG/PG
4 V CTL
FROM/TO
58
DRUM MOTOR
CP401 ICP-N15
27 GND(M)
41 MOTOR 12V
28 GND(C)
29 SW 5V
40 CAP. FG
35 CTL CLOCK
33 DUTY I/O
32 V. FF
37 S. DATA
36 S. CLK
34 CFG C/D
38 CTL C/D
39 V.P CTL
30 PAUSE(L)
26 CAP. V CTL
31 DRUM CTL V
25 D.V. DET
75 AUX(L)
76 SP(L)
NTSC(L)
TO SYSCON
5
4
3
2
1
A
B
C
D
E
F
G

MAIN (SYSCON) SCHEMATIC DIAGRAM

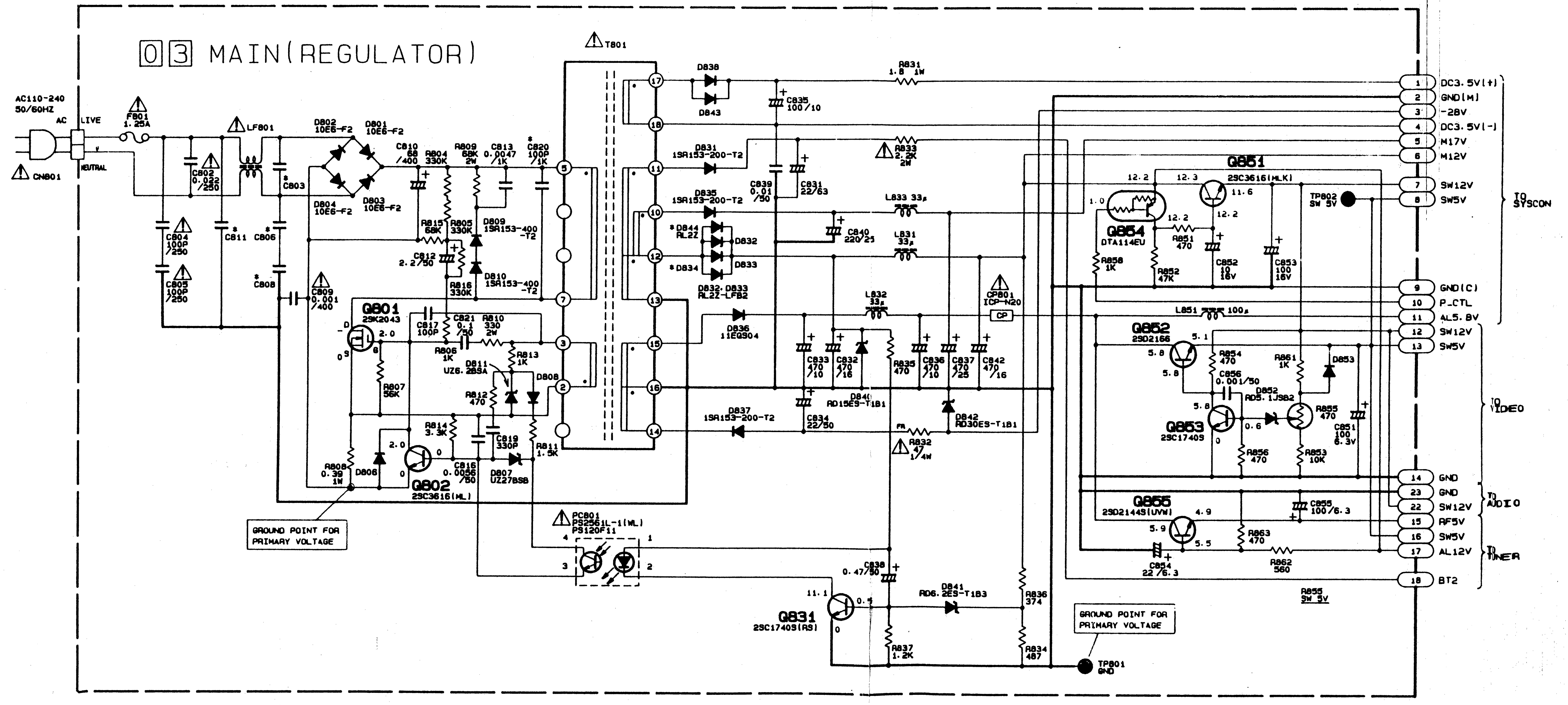

TO VIDEO
AVG_FM 93
AUX(L) 98
EE(L) 96
SP(L) 90
PB_SPE(L) 97
REC(L) 101
P. MUTE(L) 104
A/H/S_SEL 91
HEAD_SEL 92
REC_ST(L) 102
S/L/E_CTL 95
CCIR(L) 99
YNR_CTL 94
A. MUTE(L) 103
LP_SPE(H) 106
APT_CTL 105
NTSC(L) 100
* JA704
R. A. EDIT/R. PAUSE
TO AUDIO
EE(L) 84
REC_ST(L) 86
REC(L) 85
A. MUTE(H) 87
SP(L) 80
AUX(L) 79
03 MAIN(SYSCON)
IC601
HD6433926A73F
IC602
93C46/P
IC603
NM1295XF
Q601 DTC124EU
Q602 DTC124EU
Q603 DTC124EU
Q604 DTC124EU
# Q605
Q606 DTC124EU
Q607 DTC124EU
Q608 DTC124EU
Q609 DTC124EU
* Q612 DTC124EU
Q610 DTC114TU
Q611 2SB1256
X601
CF601
TH601
CP601 ICP-N25
CP602
D610
D603 11ES2
D602 11ES2
D605
D606
D607
D672 11ES2
D673 11ES2
* D700
D611
D612
* TP601
CN602
AL 5V 1
S. CLK 2
STB 3
S. DATA 4
GND 5
RC IN 6
DC 3. 5V(-) 7
DC 3. 5V(+) 8
-30V 9
TO FRONT CN1
* CN602
JSA 1
JSB 2
GND 3
SHUTTLE(L) 4
J2 5
C2 6
J1 7
* D670
* D671
TO TUNER
GND 44
SYNC_DET 54
PWM 52
AFC_DET 51
S_CURVE 53
A. MUTE (H) 47
TU_CTL (H) 45
V. MUTE (H) 46
VHF-H (L) 49
VHF-L (L) 48
UHF (L) 50
TO REGULATOR
5 M_17V
6 M_12V
2 GND(M)
9 GND(C)
11 AL_5. 8V1
8 SW_5V
10 P_CTL
7 SW_12V
4 DC_3. 5V(-)
1 DC_3. 5V(+)
3 -30V
TO SERVO
26 CAP_V_CTL
27 GND(M)
28 GND(C)
25 D. V. DET
76 SP(L)
41 M 12V
31 DRUM_V_CTL
32 VFF
34 CAP_FG_C/D
38 CTL_C/D
35 CTL_CLOCK
39 V_P_CTL
30 PAUSE(L)
NC SERVO(H)
37 SERVO_DATA
40 CAP_FG
36 SERVO_CLK
33 DUTY_I/O
75 AUX(L)
29 SW 5V
CN601
TO DECK TERMINAL CN1
1 START. S
2 CASS(L)
3 GND(C)
4 LSB
5 TU FG
6 SW 5V
7 REC SF
8 LSA
9 END. S
10 GND(M)
11 CAP REV
12 CAP CTL V
13 CAP FG
14 M12V
15 LCM2
16 LCM1
17 SUP_FG
18 M12V/M17V

NOTE1: ' * ' MARK ELEMENTS ARE NOT MOUNTED.

NOTE2: COMPARISON CHART OF MODEL MARKS ' # '.

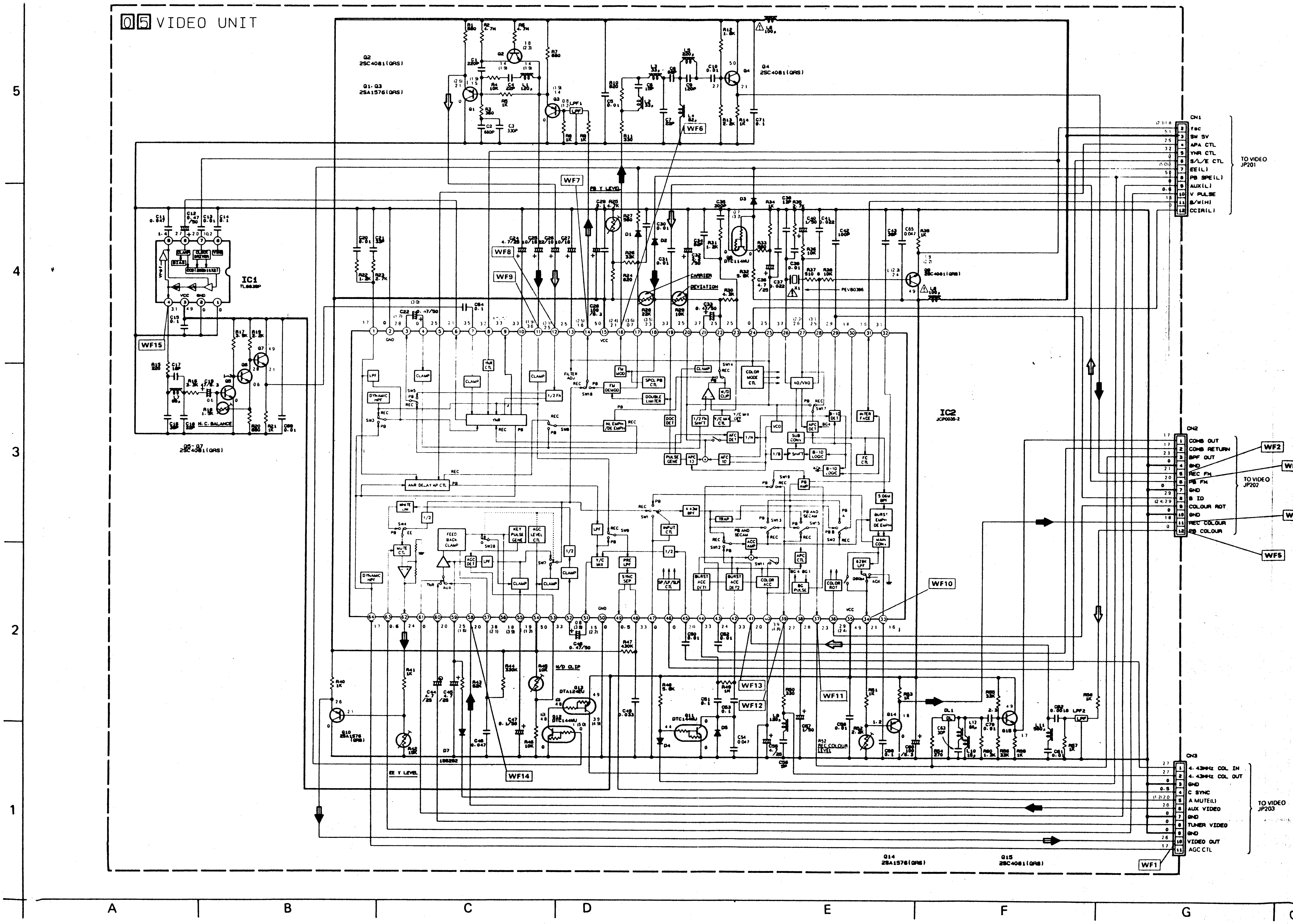
REF. NO.	MODELS	
	VR454/55	VR254/55
Q605	DTC143ZU	DTC124EU

MAIN (REGULATOR) SCHEMATIC DIAGRAM

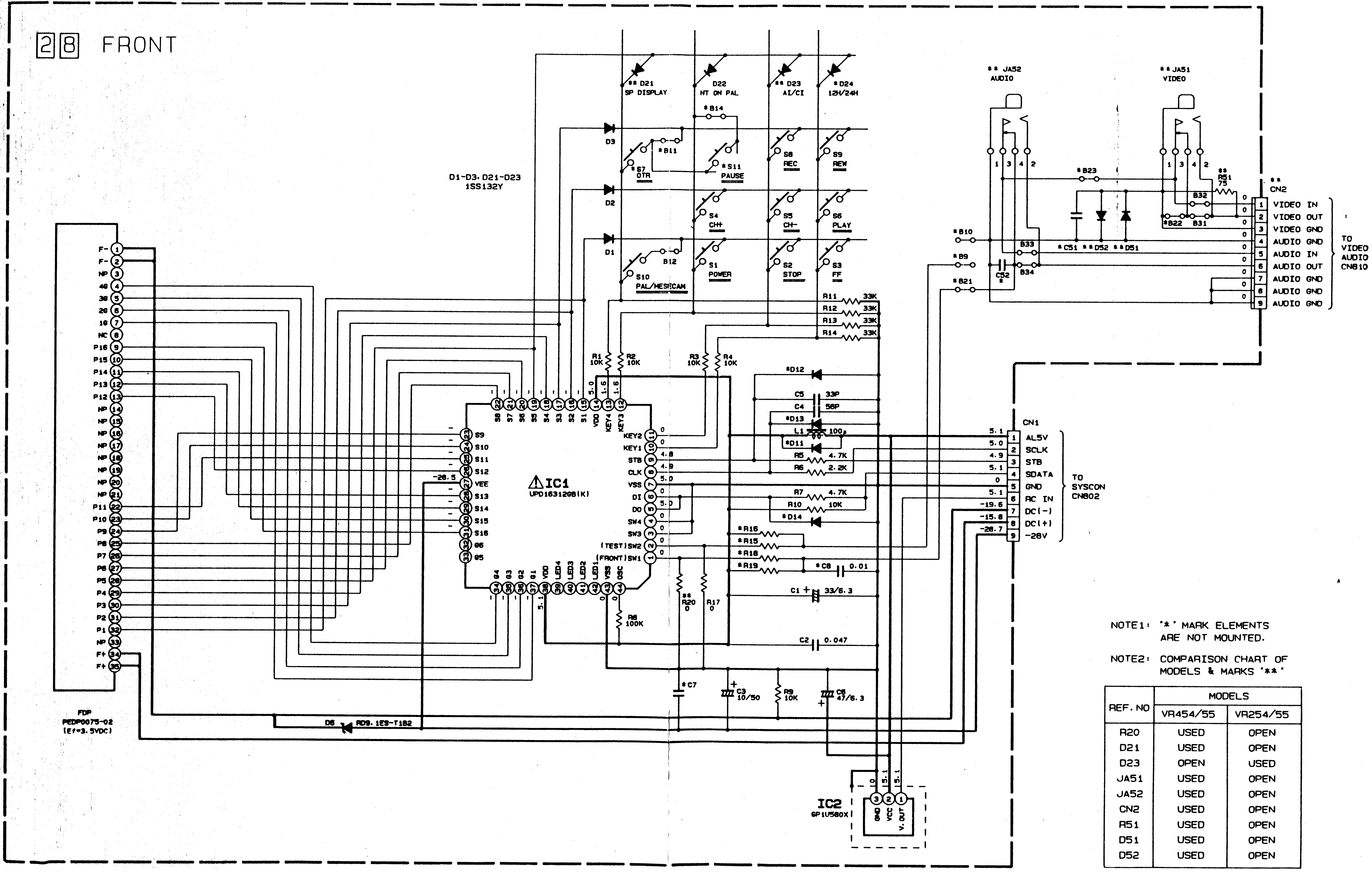

03 MAIN(REGULATOR)
AC110-240 50/60HZ
AC
LIVE
NEUTRAL
CN801
F801 1.25A
LF801
C802 0.022 /250
C803
C804 100P /250
C805 100P /250
C811
C806
C808
D802 10E6-F2
D801 10E6-F2
D804 10E6-F2
D803 10E6-F2
C810 68 /400
R804 330K
R809 68K 2W
C813 0.0047 /1K
C820 100P /1K
R815 68K
R805 330K
D809 1SR153-400 -T2
C812 2.2/50
D810 1SR153-400 -T2
R816 330K
C809 0.001 /400
Q801 2SK2043
C817 100P
C821 0.1 /50
R810 330 2W
R806 1K
D811 UZ6.2BSA
R813 1K
R812 470
D808
R807 56K
R814 3.3K
C819 330P
R811 1.5K
R808 0.39 1W
D806
Q802 2SC3616(ML)
C816 0.0056 /50
D807 UZ27BSB
GROUND POINT FOR PRIMARY VOLTAGE
T801
D838
D843
C835 100/10
R831 1.8 1W
D831 1SR153-200-T2
C839 0.01 /50
C831 22/63
R833 2.2K 2W
D835 1SR153-200-T2
*D844 RL2Z
D832
*D834
D833
D832, D833 RL2Z-LFB2
C840 220/25
L833 33μ
L831 33μ
L832 33μ
CP801 ICP-N20
CP
D836 11EQS04
C833 470 /10
C832 470 /16
R835 470
C836 470 /10
C837 470 /25
C842 470 /16
C834 22/50
D840 RD15ES-T1B1
D842 RD30ES-T1B1
D837 1SR153-200-T2
FR
R832 47 1/4W
PC801 PS2561L-1(WL) PS120F11
C838 0.47/50
Q831 2SC1740S(RS)
D841 RD6.2ES-T1B3
R836 374
R837 1.2K
R834 487
TP801 GND
GROUND POINT FOR PRIMARY VOLTAGE
Q851 2SC3616(MLK)
Q854 DTA114EU
R851 470
R858 1K
R852 47K
C852 10 16V
C853 100 16V
TP802 SW 5V
L851 100μ
Q852 2SD2166
R854 470
C856 0.001/50
D852 RD5.1JSB2
R861 1K
D853
Q853 2SC1740S
R855 470
C851 100 6.3V
R856 470
R853 10K
Q855 2SD2144S(UVW)
C855 100/6.3
R863 470
R862 560
C854 22/6.3
R855 SW 5V
1 DC3.5V(+)
2 GND(M)
3 -28V
4 DC3.5V(-)
5 M17V
6 M12V
7 SW12V
8 SW5V
TO SYSCON
9 GND(C)
10 P_CTL
11 AL5.8V
12 SW12V
13 SW5V
TO VIDEO
14 GND
23 GND
22 SW12V
TO AUDIO
15 RF5V
16 SW5V
17 AL12V
TO TUNER
18 BT2

NOTE : "*" MARK ELEMENTS ARE NOT MOUNTED.

VIDEO UNIT SCHEMATIC DIAGRAM


05 VIDEO UNIT
IC1
TL8838P
IC2
JCP0036-2
Q2
2SC4081(QRS)
Q1, Q3
2SA1576(QRS)
Q4
2SC4081(QRS)
Q5-Q7
2SC4081(QRS)
Q9
2SC4081(QRS)
Q10
2SA1576(QRS)
Q11
DTC144WU
Q12
DTA124EU
Q13
DTC144WU
Q14
2SA1576(QRS)
Q15
2SC4081(QRS)
N.C. BALANCE
PB Y LEVEL
EE Y LEVEL
H/D CLIP
CARRIER
DEVIATION
REC COLOUR LEVEL
PEV80386
CLAMP
DYNAMIC HPF
YNR
1/2 FH
FM MOD
FM DEMOD
NL EMPH /DE EMPH
DOUBLE LIMITER
SPCL PB CTL
DOC DET
PULSE GENE
COLOR MODE CTL
VCO
SUB CONV
AFC DET
APC DET
INTER FACE
FC CTL
ANR DELAY AP CTL
WHITE LIM
MUTE CTL
FEED BACK CLAMP
AGC DET
KEY PULSE GENE
AGC LEVEL CTL
LPF
Y/C MIX
PRE LPF
SYNC SEP
INPUT CTL
4.43M BPF
TRAP
ACC AMP
BURST ACC DET1
BURST ACC DET2
COLOR ACC
BG PULSE
COLOR ROT
5.06M BPF
BURST EMPH DE EMPH
MAIN CONV
628K LPF
LPF1
LPF2
DL1
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
WF14
WF15
CN1
2 fsc
3 SW 5V
4 APA CTL
5 YNR CTL
6 S/L/E CTL
7 EE(L)
8 PB SPE(L)
9 AUX(L)
10 V PULSE
11 B/W(H)
12 CCIR(L)
TO VIDEO JP201
CN2
1 COMB OUT
2 COMB RETURN
3 BPF OUT
4 GND
5 REC FM
6 PB FM
7 GND
8 B ID
9 COLOUR ROT
10 GND
11 REC COLOUR
12 PB COLOUR
TO VIDEO JP202
CN3
1 4.43MHz COL IN
2 4.43MHz COL OUT
3 GND
4 C SYNC
5 A MUTE(L)
6 AUX VIDEO
7 GND
8 TUNER VIDEO
9 GND
10 VIDEO OUT
11 AGC CTL
TO VIDEO JP203
A
B
C
D
E
F
G
1
2
3
4
5

FRONT SCHEMATIC DIAGRAM



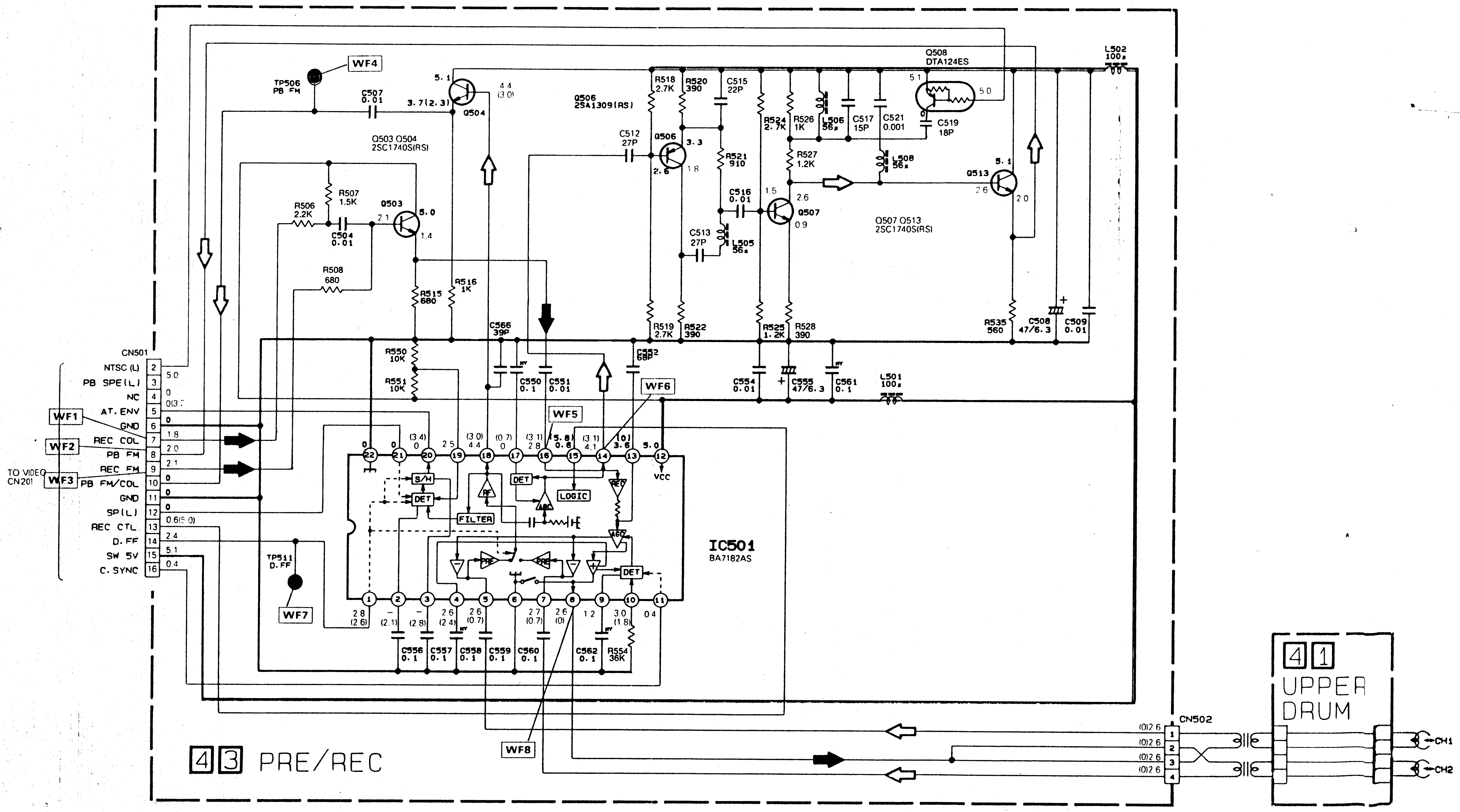
28 FRONT
D1-D3, D21-D23 1SS132Y
** D21 SP DISPLAY
D22 NT ON PAL
** D23 AI/CI
* D24 12H/24H
D3
D2
D1
* B14
* B11
* S7 OTR
* S11 PAUSE
S8 REC
S9 REW
S4 CH+
S5 CH−
S6 PLAY
B12
S10 PAL/MESECAM
S1 POWER
S2 STOP
S3 FF
R11 33K
R12 33K
R13 33K
R14 33K
R1 10K
R2 10K
R3 10K
R4 10K
*D12
C5 33P
C4 56P
*D13
L1 100μ
*D11
R5 4.7K
R6 2.2K
R7 4.7K
R10 10K
*D14
*R16
*R15
*R18
*R19
*C8 0.01
C1 33/6.3
C2 0.047
** R20 0
R17 0
R8 100K
*C7
C3 10/50
R9 10K
C6 47/6.3
IC1 UPD16312GB(K)
S9 S10 S11 S12 VEE S13 S14 S15 S16 G6 G5
S8 S7 S6 S5 S4 S3 S2 S1 VDD KEY4 KEY3
KEY2 KEY1 STB CLK VSS DI DO SW4 SW3 (TEST)SW2 (FRONT)SW1
G4 G3 G2 G1 VDD LED4 LED3 LED2 LED1 VSS OSC
-28.5
FDP PEDP0075-02 (Ef=3.5VDC)
F- F- NP 4G 3G 2G 1G NC P16 P15 P14 P13 P12 NP NP NP NP NP NP NP P11 P10 P9 P8 P7 P6 P5 P4 P3 P2 P1 NP F+ F+
D6 RD9.1ES-T1B2
IC2 GP1U580X
GND VCC V.OUT
** JA52 AUDIO
** JA51 VIDEO
*B23
** R51 75
B32
*B22 B31
*B10
*B9
*B21
B33
B34
C52 *
*C51 **D52 **D51
** CN2
1 VIDEO IN
2 VIDEO OUT
3 VIDEO GND
4 AUDIO GND
5 AUDIO IN
6 AUDIO OUT
7 AUDIO GND
8 AUDIO GND
9 AUDIO GND
TO VIDEO AUDIO CN810
CN1
1 AL5V
2 SCLK
3 STB
4 SDATA
5 GND
6 RC IN
7 DC(−)
8 DC(+)
9 −28V
TO SYSCON CN802
5.1 5.0 4.9 5.1 0 5.1 −19.6 −15.8 −28.7

NOTE1: "*" MARK ELEMENTS ARE NOT MOUNTED.

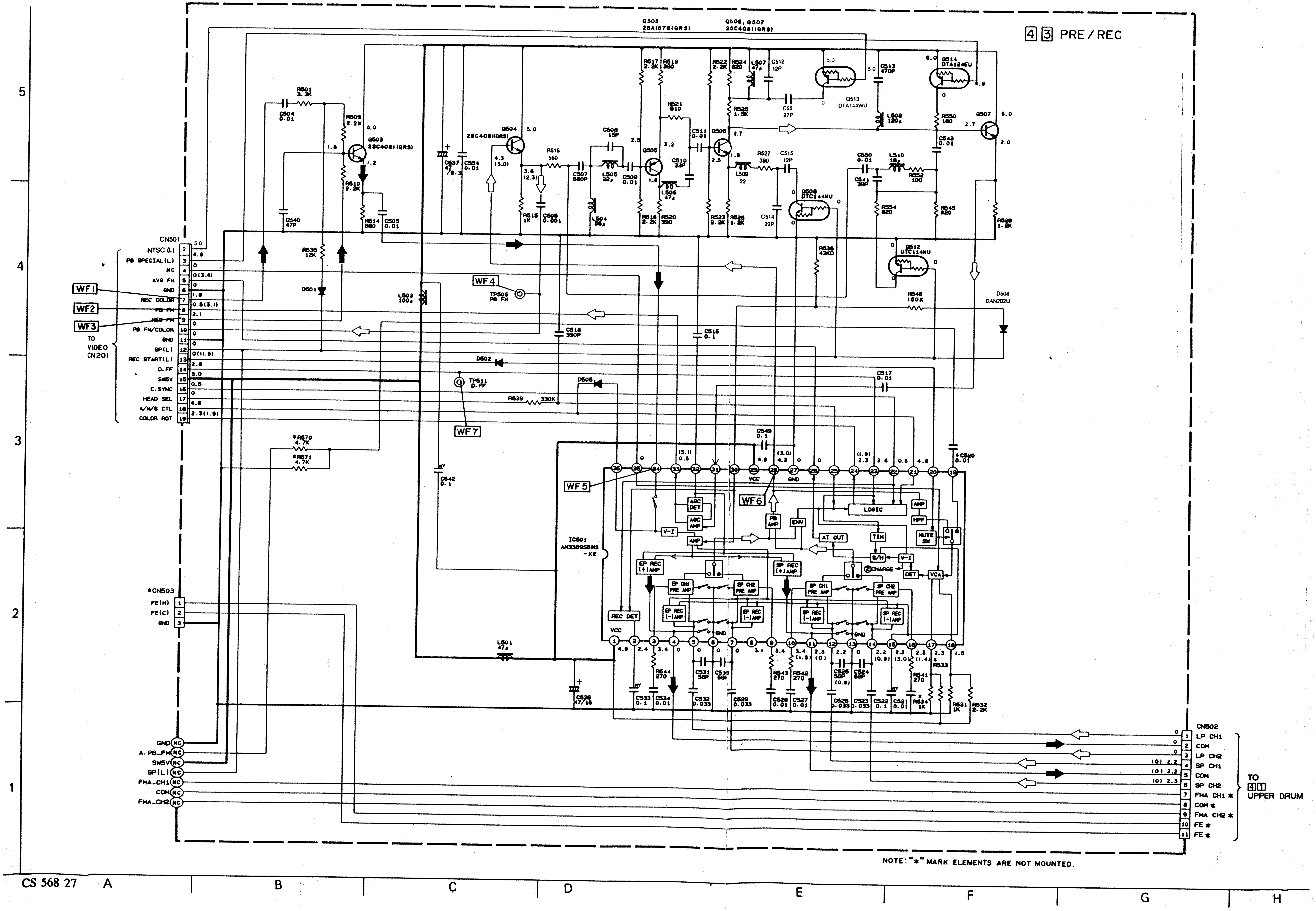
NOTE2: COMPARISON CHART OF MODELS & MARKS "**"

REF. NO	MODELS	
	VR454/55	VR254/55
R20	USED	OPEN
D21	USED	OPEN
D23	OPEN	USED
JA51	USED	OPEN
JA52	USED	OPEN
CN2	USED	OPEN
R51	USED	OPEN
D51	USED	OPEN
D52	USED	OPEN

PRE/REC SCHEMATIC DIAGRAM (for VR254/55)

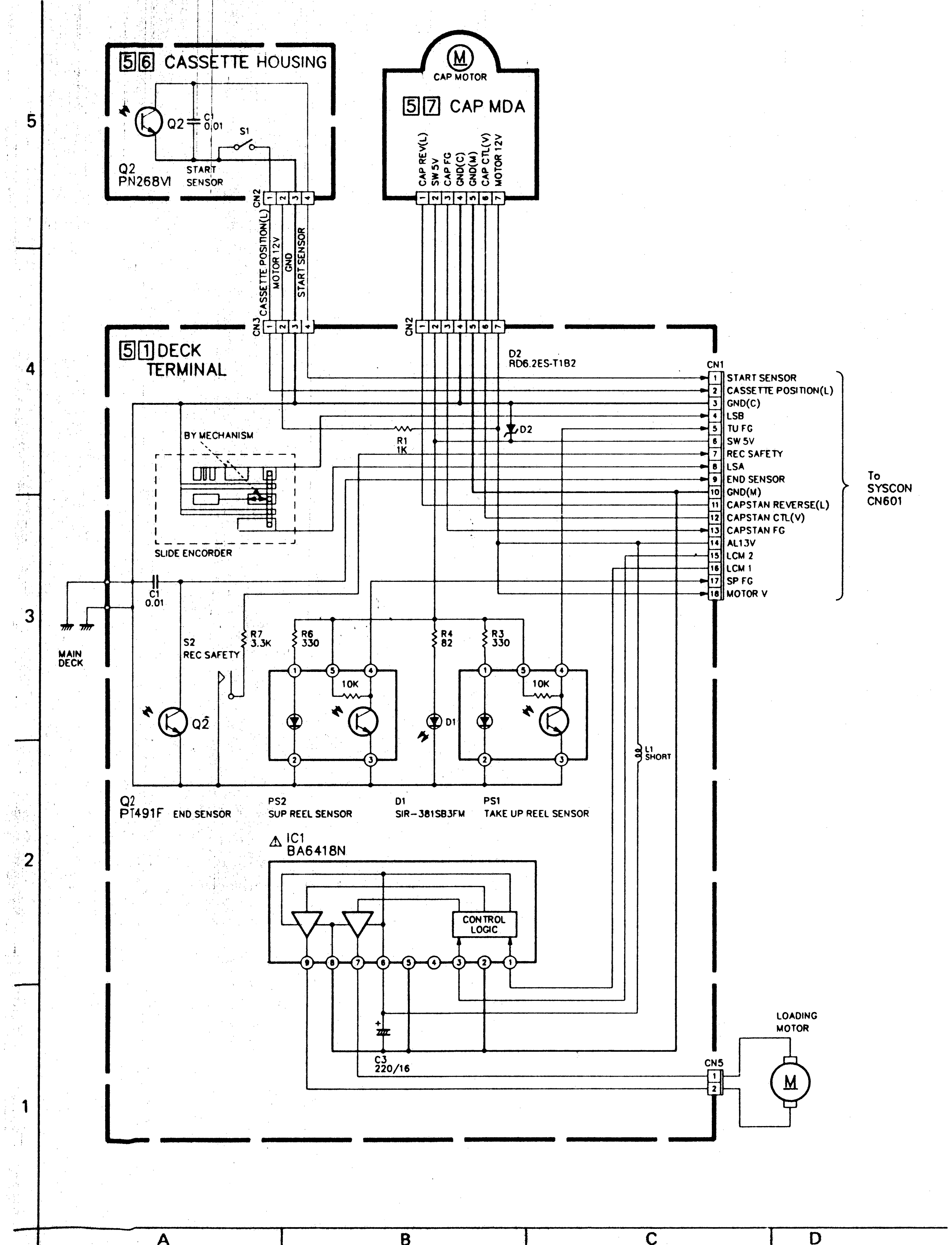

WF4
TP506 PB FM
C507 0.01
5.1
3.7(2.3)
4.4 (3.0)
Q504
Q503 Q504 2SC1740S(RS)
R507 1.5K
R506 2.2K
C504 0.01
Q503
5.0
2.1
1.4
R508 680
R515 680
R516 1K
Q506 2SA1309(RS)
C512 27P
Q506
3.3
2.6
1.8
R518 2.7K
R520 390
C515 22P
R521 910
C516 0.01
C513 27P
L505 56μ
1.5
2.6
Q507
0.9
R524 2.7K
R526 1K
L506 56μ
C517 15P
C521 0.001
R527 1.2K
L508 56μ
Q508 DTA124ES
5.1
5.0
C519 18P
Q513
5.1
2.6
2.0
Q507 Q513 2SC1740S(RS)
L502 100μ
R535 560
C508 47/6.3
C509 0.01
R519 2.7K
R522 390
R525 1.2K
R528 390
C566 39P
C552 68P
R550 10K
R551 10K
C550 0.1
C551 0.01
C554 0.01
C555 47/6.3
C561 0.1
L501 100μ
WF6
WF5
CN501
NTSC (L) 2
PB SPE(L) 3
NC 4
AT. ENV 5
GND 6
REC COL 7
PB FM 8
REC FM 9
PB FM/COL 10
GND 11
SP(L) 12
REC CTL 13
D. FF 14
SW 5V 15
C. SYNC 16
WF1
WF2
WF3
TO VIDEO CN201
5.0
0
0(3.?)
0
1.8
2.0
2.1
0
0
0
0.6(5.0)
2.4
5.1
0.4
TP511 D. FF
WF7
S/H
DET
FILTER
RF
DET
ABC
LOGIC
REC
AGC
PRE
PRE
DET
VCC
IC501 BA7182AS
0 (3.4) 0 2.5 (3.0) 4.4 (0.7) 0 (3.1) 2.8 (5.8) 0.6 (3.1) 4.1 (0) 3.6 5.0
2.8 (2.6) – (2.1) – (2.8) 2.6 (2.4) 2.6 (0.7) 2.7 (0.7) 2.6 (0) 1.2 3.0 (1.8) 0.4
C556 0.1
C557 0.1
C558 0.1
C559 0.1
C560 0.1
C562 0.1
R554 36K
WF8
CN502
(0)2.6 1
(0)2.6 2
(0)2.6 3
(0)2.6 4
41 UPPER DRUM
CH1
CH2
43 PRE/REC
1
2
3
4
5
A
B
C
D
E
F

PRE/REC SCHEMATIC DIAGRAM (for VR454/55)


4 3 PRE / REC
CN501
NTSC (L)
PB SPECIAL(L)
NC
AVG FM
GND
REC COLOR
PB FM
REC FM
PB FM/COLOR
GND
SP(L)
REC START(L)
D.FF
SW5V
C.SYNC
HEAD SEL
A/M/S CTL
COLOR ROT
5.0
4.9
0
0(3.4)
0
1.8
0.8(3.1)
2.1
0
0
0
0(11.5)
2.6
5.0
0.8
0
4.8
2.3(1.9)
WF1
WF2
WF3
WF4
WF5
WF6
WF7
TO VIDEO CN201
Q505 2SA1576(QRS)
Q506, Q507 2SC4081(QRS)
Q503 2SC4081(QRS)
Q504 2SC4083(QRS)
Q513 DTA144WU
Q514 DTA124EU
Q508 DTC144WU
Q512 DTC114WU
R501 3.3K
C504 0.01
R509 2.2K
R510 2.2K
R514 680
C505 0.01
C540 47P
R535 12K
D501
C537 47/6.3
C554 0.01
R516 560
R515 1K
C506 0.001
C507 680P
C508 15P
L505 22μ
C509 0.01
L504 56μ
R517 2.2K
R519 390
R521 910
R518 2.2K
R520 390
L506 47μ
C510 33P
C511 0.01
R522 2.2K
R524 820
L507 47μ
C512 12P
C55 27P
R525 1.5K
R527 390
C515 12P
L509 22
C514 22P
R523 2.2K
R526 1.2K
C513 470P
L508 120μ
C550 0.01
L510 18μ
R552 100
C541 39P
R554 820
R545 820
R550 180
C543 0.01
R528 1.2K
R536 43KΩ
R548 150K
D508 DAN202U
L503 100μ
TP506 PB FM
C518 390P
C516 0.1
D502
TP511 D.FF
D505
R539 330K
C517 0.01
C549 0.1
*C520 0.01
*R570 4.7K
*R571 4.7K
C542 0.1
IC501 AN3389SBNS-XE
VCC
GND
AGC DET
AGC AMP
V-I
AMP
PB AMP
ENV
AT OUT
LOGIC
AMP
HPF
MUTE SW
TIM
S/H
V-I
CHARGE
DET
VCA
EP REC (+)AMP
SP REC (+)AMP
EP CH1 PRE AMP
EP CH2 PRE AMP
SP CH1 PRE AMP
SP CH2 PRE AMP
EP REC (-)AMP
SP REC (-)AMP
REC DET
*CN503
FE(H)
FE(C)
GND
L501 47μ
C536 47/16
C533 0.1
C534 0.01
R544 270
C531 56P
C530 68P
C532 0.033
C529 0.033
R543 270
R542 270
C528 0.01
C527 0.01
C525 56P
C524 68P
C526 0.033
C523 0.033
C522 0.1
C521 0.01
R541 270
*R534 1K
R533
R531 1K
R532 2.2K
GND
A.PB_FM
SW5V
SP(L)
FMA_CH1
COM
FMA_CH2
NC
CN502
LP CH1
COM
LP CH2
SP CH1
COM
SP CH2
FMA CH1 *
COM *
FMA CH2 *
FE *
FE *
(0) 2.2
(0) 2.2
(0) 2.3
TO 4 1 UPPER DRUM
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTE: "*" MARK ELEMENTS ARE NOT MOUNTED.

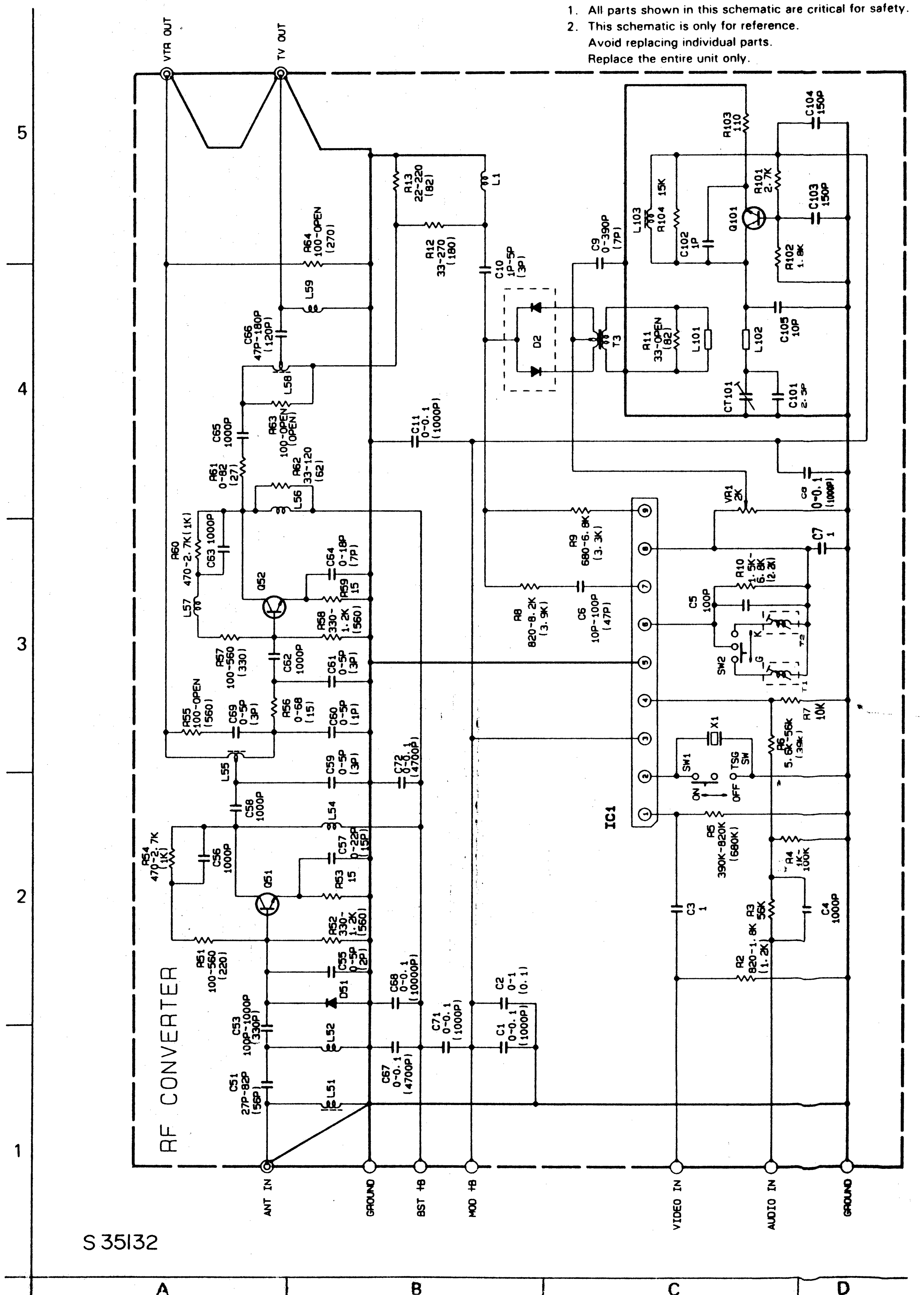
DECK TERMINAL,CASS. HOUSING AND CAPSTAN MDA SCHEMATIC DIAGRAMS



5 6 CASSETTE HOUSING
Q2
C1 0.01
S1
Q2 PN268VI
START SENSOR
CN2
CASSETTE POSITION(L)
MOTOR 12V
GND
START SENSOR
CAP MOTOR
5 7 CAP MDA
CAP REV(L)
SW 5V
CAP FG
GND(C)
GND(M)
CAP CTL(V)
MOTOR 12V
CN3
5 1 DECK TERMINAL
D2 RD6.2ES-T1B2
CN1
1 START SENSOR
2 CASSETTE POSITION(L)
3 GND(C)
4 LSB
5 TU FG
6 SW 5V
7 REC SAFETY
8 LSA
9 END SENSOR
10 GND(M)
11 CAPSTAN REVERSE(L)
12 CAPSTAN CTL(V)
13 CAPSTAN FG
14 AL13V
15 LCM 2
16 LCM 1
17 SP FG
18 MOTOR V
To SYSCON CN601
BY MECHANISM
R1 1K
SLIDE ENCORDER
MAIN DECK
C1 0.01
S2 REC SAFETY
R7 3.3K
R6 330
R4 82
R3 330
10K
10K
Q2
D1
L1 SHORT
Q2 PT491F END SENSOR
PS2 SUP REEL SENSOR
D1 SIR-381SB3FM
PS1 TAKE UP REEL SENSOR
⚠ IC1 BA6418N
CONTROL LOGIC
C3 220/16
LOADING MOTOR
CN5
M
A
B
C
D
1
2
3
4
5

RF CONVERTER SCHEMATIC DIAGRAM

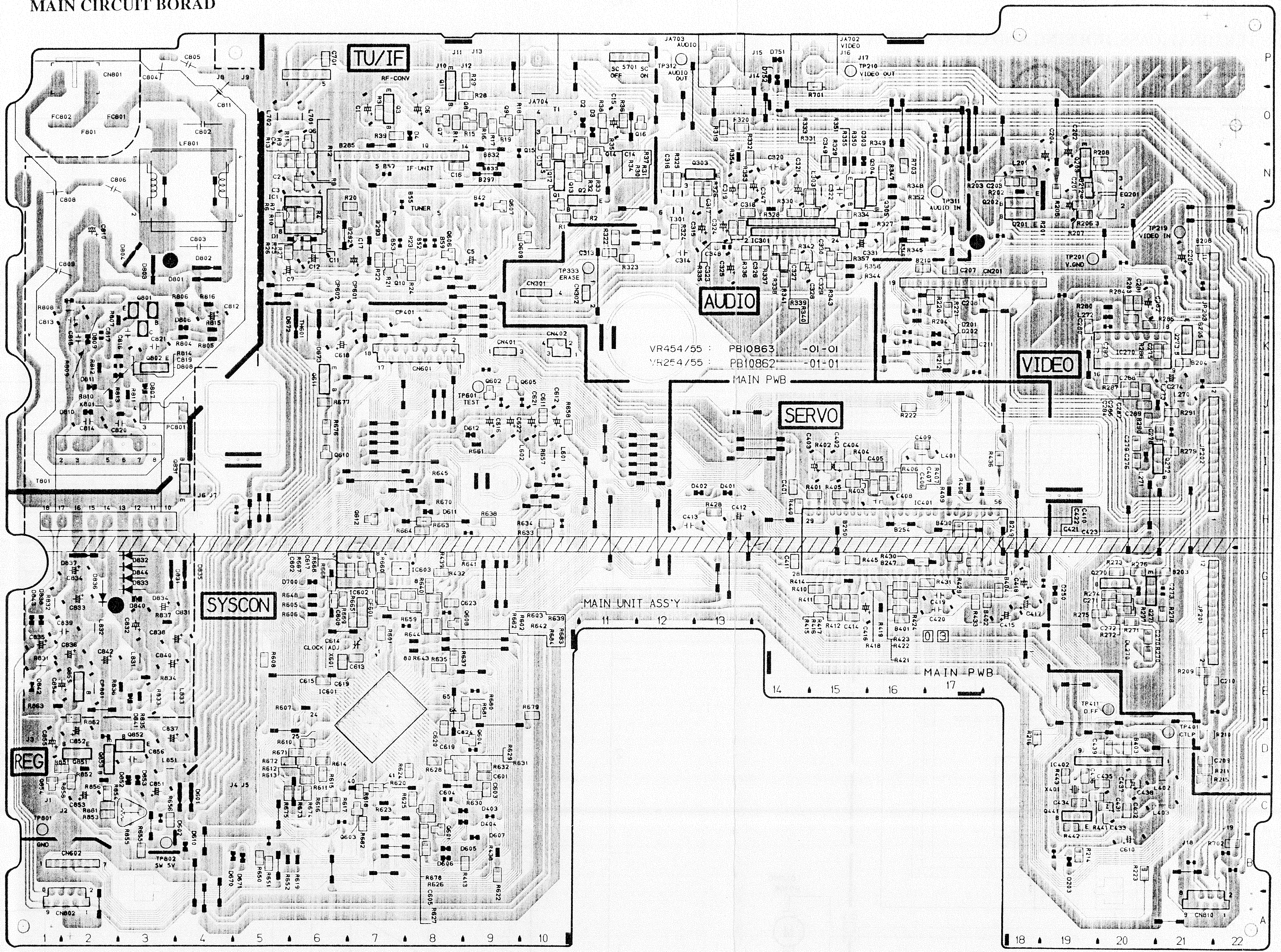
Note:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.



VTR OUT
TV OUT
RF CONVERTER
R13 22-220 (82)
L1
R12 33-270 (180)
R64 100-OPEN (270)
L59
C66 47P-180P (120P)
L58
C10 1P-5P (3P)
D2
C9 0-390P (7P)
T3
L103
R104 15K
C102 1P
Q101
R103 110
R101 2.7K
C104 150P
C103 150P
R102 1.8K
R11 33-OPEN (82)
L101
L102
C105 10P
CT101
C101 2-3P
C65 1000P
C11 0-0.1 (1000P)
R63 100-OPEN (OPEN)
R61 0-82 (27)
R62 33-120 (62)
L56
R60 470-2.7K (1K)
C63 1000P
C64 0-18P (7P)
Q52
R59 15
L57
R58 330-1.2K (560)
VR1 2K
C8 0-0.1 (1000P)
R9 680-6.8K (3.3K)
C7 1
R10 1.5K-6.8K (2.2K)
R8 820-8.2K (3.9K)
C6 10P-100P (47P)
C5 100P
SW2
R57 100-560 (330)
C62 1000P
C61 0-5P (3P)
R55 100-OPEN (560)
C69 0-5P (3P)
R56 0-68 (15)
C60 0-5P (1P)
L55
C59 0-5P (3P)
C72 0-0.1 (4700P)
R7 10K
X1
SW1
ON
OFF
TSG SW
R6 5.6K-56K (39K)
IC1
C58 1000P
L54
R54 470-2.7K (1K)
C56 1000P
C57 0-22P (15P)
Q51
R53 15
R52 330-1.2K (560)
R5 390K-820K (680K)
R4 1K-100K
C3 1
R3 56K
C4 1000P
R51 100-560 (220)
C55 0-5P (2P)
C68 0-0.1 (10000P)
D51
C2 0-1 (0.1)
R2 820-1.8K (1.2K)
C53 100P-1000P (330P)
L52
C71 0-0.1 (1000P)
C1 0-0.1 (1000P)
C51 27P-82P (56P)
L51
C67 0-0.1 (4700P)
ANT IN
GROUND
BST +B
MOD +B
VIDEO IN
AUDIO IN
GROUND
A
B
C
D
1
2
3
4
5

S 35132

MAIN CIRCUIT BORAD


TU/IF
AUDIO
VIDEO
SERVO
SYSCON
REG
RF-CONV
IF-UNIT
TUNER
VR454/55 : PB10863 -01-01
VR254/55 : PB10862 -01-01
MAIN PWB
MAIN UNIT ASS'Y
MAIN PWB
TP312 AUDIO OUT
TP210 VIDEO OUT
TP311 AUDIO IN
TP219 VIDEO IN
TP201 V.GND
TP333 ERASE
TP601 TEST
TP411 D.FF
TP401 CTLP
TP801 GND
TP802 SW 5V
CLOCK ADJ
SC OFF
SC ON
CN801
CN301
CN302
CN201
CN401
CN402
CN601
CN602
CN802
CN810
IC301
IC401
IC402
IC601
IC602
IC603
IC270
1 2 3 4 5 6 7 8 9 10
11 12 13
14 15 16 17
18 19 20 21 22
A B C D E F G H J K L M N O P

LEADLESS COMPONENT PARTS LOCATION GUIDE <MAIN BOARD>

REF. No.	LOCATION
IC	
IC601	7E
IC603	7G
TRANSISTOR	
Q1	10M
Q6	6O
Q7	8O
Q8	9O
Q9	9O
Q10	7L
Q13	10N
Q14	11N
Q15	10N
Q16	12O
Q601	8C
Q602	9J
Q603	7C
Q604	9D
Q605	9J
Q606	8M
Q607	9M
Q608	8F
Q609	10M
Q610	6I
Q612	7H
Q854	1C
RESISTOR	
R1	10M
R2	11M
R3	7O
R4	6M
R6	5M
R7	6M
R8	6N
R9	6N
R10	5M
R11	6O
R12	6N
R13	5N
R14	8O
R15	9O
R16	9O
R17	9O
R18	9O
R19	9O
R20	7M
R21	7L
R22	7L
R23	8M
R24	8L
R25	6M
R26	6M
R27	5M
R28	9O
R29	9P
R30	10N
R31	10N

REF. No.	LOCATION
RESISTOR	
R32	11N
R33	11N
R34	10N
R35	11O
R36	11O
R37	11N
R38	11O
R39	7O
R203	18N
R205	19N
R206	19M
R207	19M
R208	20N
R209	21E
R210	21D
R211	21D
R212	17K
R214	19B
R215	21C
R216	18D
R220	17L
R221	17L
R222	16J
R223	20B
R270	20F
R271	20F
R272	20F
R273	20G
R274	20G
R275	19F
R276	20G
R278	21F
R279	21I
R283	20L
R284	20K
R285	20K
R286	21K
R287	20J
R290	20J
R291	21J
R319	13O
R320	13O
R322	11M
R323	11M
R324	12M
R325	12N
R326	13N
R329	15N
R330	14M
R331	15M
R332	13N
R333	14N
R334	15M
R335	13M
R336	13M
R337	14M

REF. No.	LOCATION
RESISTOR	
R338	14L
R339	14M
R340	14L
R341	14L
R342	14L
R343	15L
R344	15M
R345	15M
R347	16N
R349	16N
R351	15N
R353	13N
R357	15M
R401	15H
R402	15I
R403	15H
R404	15I
R406	15I
R407	15I
R410	15G
R411	15G
R412	15F
R413	9B
R415	15G
R416	15G
R417	15G
R418	16G
R421	16F
R422	16G
R423	16G
R424	16F
R428	13H
R429	16G
R430	16G
R431	17G
R432	8G
R433	17G
R436	18I
R439	8G
R440	14H
R441	19C
R442	19C
R443	19D
R445	15G
R601	7F
R602	7G
R603	8G
R608	5E
R610	6D
R611	6C
R612	6D
R613	6D
R614	6D
R615	6C
R616	6C
R617	6C

REF. No.	LOCATION
RESISTOR	
R618	7C
R620	7C
R622	9B
R624	8D
R625	8C
R626	8C
R627	8B
R628	8D
R629	8D
R630	9C
R631	8C
R632	9D
R633	10H
R634	10H
R635	8E
R637	8F
R638	9H
R639	8G
R640	8G
R641	9G
R642	8F
R650	5B
R651	5B
R655	3B
R656	3C
R657	10I
R658	10J
R660	7G
R662	7G
R663	8H
R664	8H
R665	7F
R666	6G
R667	7G
R668	7G
R669	6G
R671	6D
R672	5D
R673	6C
R674	6C
R675	5C
R676	6J
R677	6J
R678	8C
R679	10E
R680	9E
R681	9E
R682	7C
R683	8F
R684	8F
R701	15O
R702	22B
R703	16N
R851	2D
R853	2C
R854	2C

REF. No.	LOCATION
RESISTOR	
R858	2C
R861	2C
R862	2D
CAPACITOR	
C4	19K
C11	19I
C13	21H
C14	22O
C16	20J
C203	18N
C207	17L
C208	17L
C209	21D
C210	21E
C211	17K
C270	20F
C271	20G
C272	20G
C275	20K
C276	20I
C278	21J
C279	20I
C280	19K
C281	20L
C283	20K
C284	20J
C286	20J
C287	20J
C288	20K
C289	20J
C313	11M
C316	12N
C317	13N
C318	13M
C323	13M
C326	14M
C327	14M
C329	15L
C330	15M
C349	15N
C401	14I
C404	15I
C405	16I
C406	16I
C407	16I
C409	16I
C410	17H
C411	14G
C414	15F
C421	17G
C422	17H
C423	17G
C432	20C
C433	20C
C434	19C
C435	20C

MAIN COMPONENT PARTS LOCATION GUIDE <MAIN BOARD>

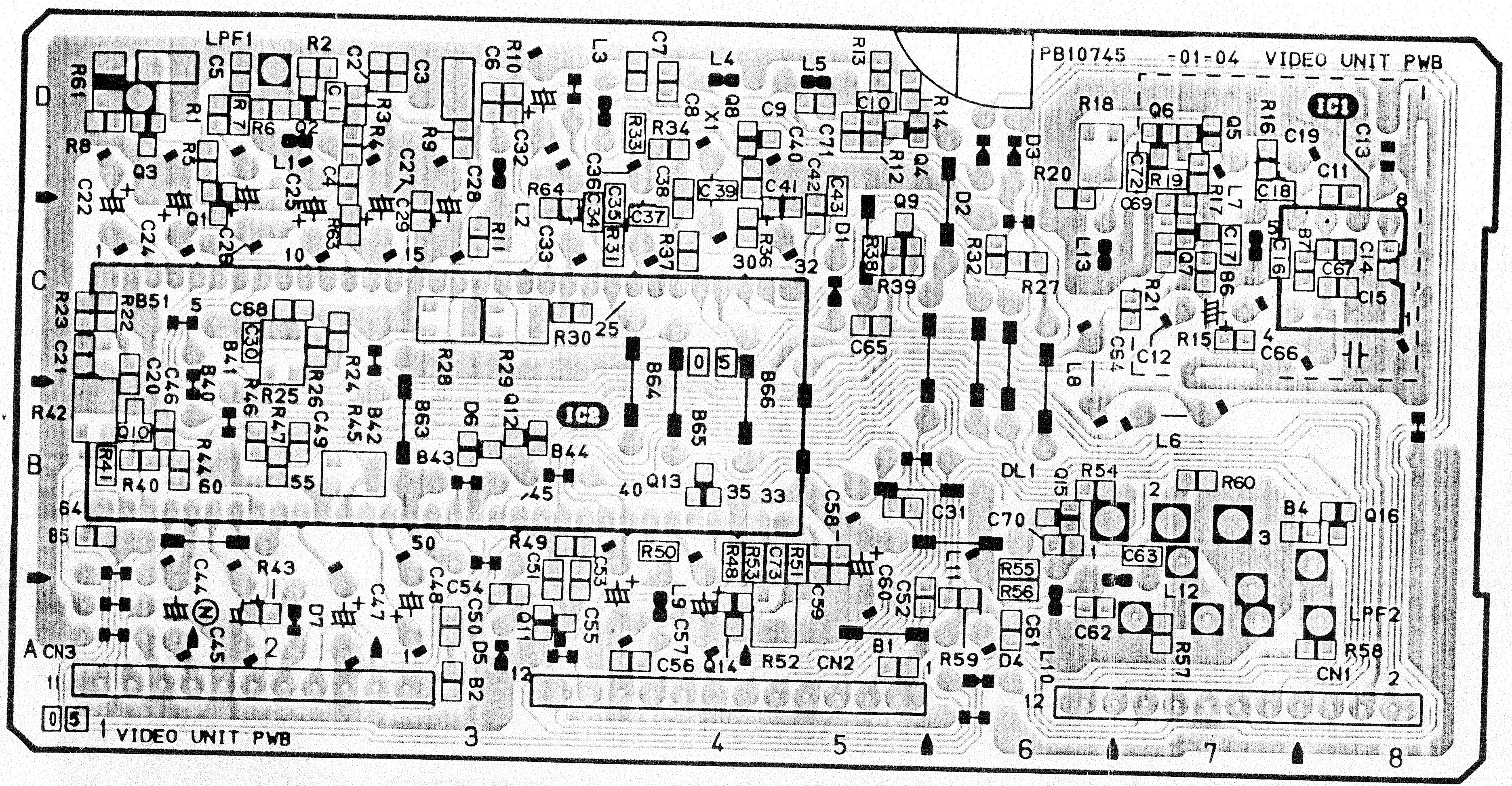
REF. No.	LOCATION
CAPACITOR	
C436	19D
C438	20C
C439	20D
C601	9C
C602	6G
C603	9C
C605	8C
C608	6G
C611	10J
C613	7F
C615	6E
C617	7G
C620	8D
C623	8F
C624	8E
C701	6P

REF. No.	LOCATION
IC	
IC1	6M
IC270	20K
IC301	14M
IC401	16H
IC601	7E
IC602	7G
IC603	7G
TRANSISTOR	
Q1	10M
Q4	11N
Q3	7O
Q6	6O
Q7	8O
Q8	9O
Q9	9O
Q10	7L
Q11	8P
Q12	10N
Q13	10N
Q14	11N
Q15	10N
Q16	12O
Q201	18M
Q202	18M
Q203	19N
Q270	20G
Q271	20G
Q272	21I
Q273	21K
Q303	13N
Q304	16N
Q305	15N
Q441	19C
Q601	8C
Q602	9J
Q603	7C
Q604	9D
Q605	9J
Q606	8M
Q607	9M
Q608	8F
Q609	10M
Q610	6I
Q611	6J
Q801	3L
Q802	3K
Q831	4I
Q851	2D
Q852	3D
Q853	2D
Q854	1C
Q855	2E
DIODE	
D1	5M
D2	11O
D3	11O

REF. No.	LOCATION
DIODE	
D4	8O
D201	17K
D202	17K
D250	19G
D303	15N
D401	13H
D402	13H
D403	9C
D601	4C
D602	4C
D605	8B
D606	8B
D607	9B
D610	4B
D611	8H
D612	9I
D672	6K
D673	6K
D751	14P
D752	14P
D801	4L
D802	4L
D803	3L
D804	3M
D806	4K
D807	3J
D808	2J
D809	2K
D810	2J
D811	2J
D831	3G
D832	3G
D833	3G
D835	4G
D836	2G
D837	2G
D838	1F
D840	3G
D841	3E
D842	1E
D843	1F
D852	3C
D853	3C
CONNECTOR	
CN201	17L
CN301	10L
CN302	11L
CN401	9K
CN402	10K
CN601	8K
CN801	2P
CN802	2A
CN810	21A
ADJUSTMENT	
R855	3C
C614	7F

REF. No.	LOCATION
CP	
CP401	7K
CP601	7L
CP602	6L
CP801	2E
TEST POINT	
TP201	19M
TP210	15P
TP312	12P
TP333	11L
TP401	21D
TP411	20E
TP801	1C
TP802	3B

VIDEO UNIT CIRCUIT BOARDS



MAIN CONPONENT PARTS LOCATION GUIDE
<VIDEO UNIT PWB>

REF. No.	LOCATION
IC	
IC1	8C
IC2	4B

REF. No.	LOCATION
TRANSISTOR	
Q1	2D
Q2	2D
Q3	1D
Q4	5D
Q5	7D
Q6	7D
Q7	7C
Q8	4D
Q9	5C
Q10	1B
Q11	3A
Q12	3B
Q13	4B
Q14	4A
Q15	6B

REF. No.	LOCATION
DIODE	
D1	5C
D2	6D
D3	6D
D4	6A
D5	3A
D7	2A

REF. No.	LOCATION
CONNECTOR	
CN1	8A
CN2	5A
CN3	1A

REF. No.	LOCATION
ADJUSTMENT	
R18	6D
R25	2C
R28	3C
R29	3C
R42	1B
R45	2B
R52	5A

LEADLESS COMPONENT PARTS LOCATION GUIDE
<VIDEO UNIT PWB>

REF. No.	LOCATION
TRANSISTOR	
Q1	2D
Q2	2D
Q3	1D
Q4	5D
Q5	7D
Q6	7D
Q7	7C
Q8	4D
Q9	5C
Q10	1B
Q11	3A
Q12	3B
Q13	4B
Q14	4A
Q15	6B
Q16	8B

REF. No.	LOCATION
DIODE	
D6	3B

REF. No.	LOCATION
RESISTOR	
R1	2D
R2	2D
R3	2D
R4	2D
R5	2D
R6	2D
R7	2D
R8	1D
R9	3D
R10	3D
R11	3C
R12	5D
R13	5D
R14	5D
R15	7C
R16	7D
R17	7D
R18	6D
R19	7D
R20	6D
R21	7C
R22	1C

REF. No.	LOCATION
RESISTOR	
R23	1C
R24	2C
R25	2C
R26	2C
R27	6C
R28	3C
R29	3C
R30	3C
R31	4C
R32	6C
R33	4D
R34	4D
R35	4D
R36	4C
R37	4C
R38	5C
R39	5C
R40	1B
R41	1B
R42	1B
R43	2A
R44	1B
R45	2B
R46	2B
R47	2B
R48	4B
R49	4B
R50	4B
R51	5B
R52	5A
R53	5B
R54	6B
R55	6B
R56	6B
R57	7A
R58	8A
R59	6A
R60	7B
R61	1D
R62	2C
R63	3D
R64	3C

REF. No.	LOCATION
CAPACITOR	
C1	2D
C2	2D
C3	3D

REF. No.	LOCATION
CAPACITOR	
C4	2D
C5	2D
C6	3D
C7	4D
C8	4D
C9	5D
C10	5D
C11	8D
C14	8C
C15	8C
C16	7C
C17	7C
C18	7D
C20	1C
C21	1C
C29	3C
C30	2C
C31	5B
C34	4D
C35	4D
C37	4C
C38	4D
C39	4D
C41	5D
C42	5D
C43	5D
C46	1B
C49	2B
C50	3A
C51	3B
C52	5A
C53	4B
C54	3A
C56	4A
C58	5B
C59	5B
C61	6A
C62	6A
C63	7B
C64	7C
C65	5C
C67	8C
C68	2C
C69	7D
C70	6B
C71	5D
C72	7D
C73	5B

FRONT CIRCUIT BOARD (for VR254/55)

‹PRE/REC PWBA› -for VR254/55-

MAIN COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
IC	
IC501	1B
TRANSISTOR	
Q503	2C
Q504	2C
Q506	3B
Q507	3C
Q508	3A
Q513	4B
CONNECTOR	
CN501	3A
CN502	2B
TEST POINT	
TP506	1C
TP511	1C

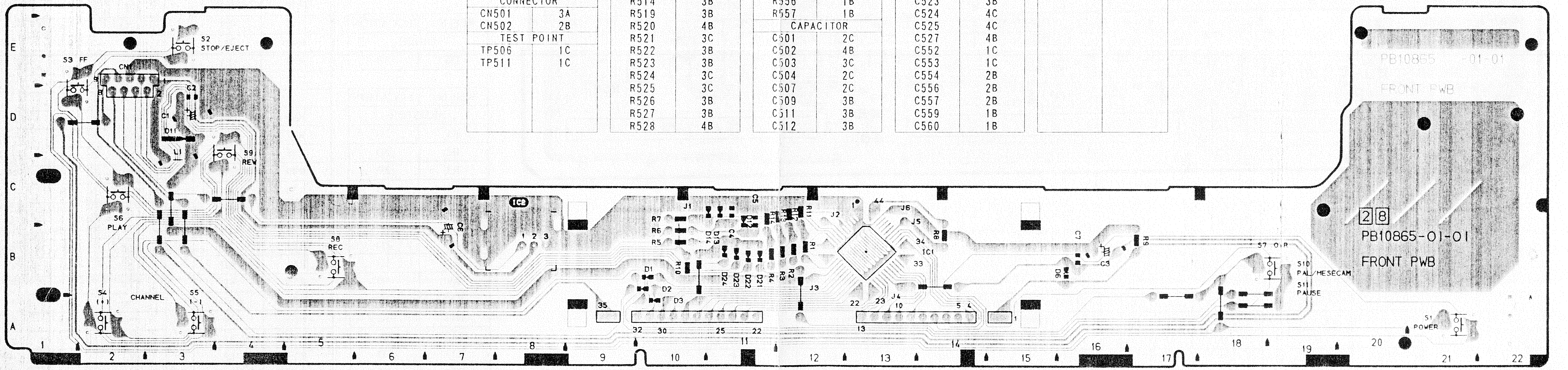
REF. No.	LOCATION
RESISTOR	
R501	4C
R504	3C
R505	2C
R506	2C
R507	2C
R508	2C
R512	3C
R513	3C
R514	3B
R519	3B
R520	4B
R521	3C
R522	3B
R523	3B
R524	3C
R525	3C
R526	3B
R527	3B
R528	4B

LEADLESS COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
RESISTOR	
R529	3B
R530	3B
R531	4C
R535	4A
R537	3B
R552	1C
R553	1C
R555	1B
R556	1B
R557	1B
CAPACITOR	
C501	2C
C502	4B
C503	3C
C504	2C
C507	2C
C509	3B
C511	3B
C512	3B

REF. No.	LOCATION
CAPACITOR	
C513	3C
C514	3B
C515	3B
C516	3C
C517	3B
C518	4B
C520	3A
C521	3A
C523	3B
C524	4C
C525	4C
C527	4B
C552	1C
C553	1C
C554	2B
C556	2B
C557	2B
C559	1B
C560	1B

REF. No.	LOCATION
CAPACITOR	
C563	1B
C564	1B


E
D
C
B
A
S2 STOP/EJECT
S3 FF
CN1
C2
C1
D11
L1
S9 REW
S6 PLAY
S8 REC
S4
CHANNEL
S5 I-I
IC3
J1
C5
R7
R6
R5
C4
D13
D12
R10
D1
D2
D3
D24
D23
D22
D21
R4
R3
R2
R1
R11
J2
J3
J4
J5
J6
IC1
R8
C7
C3
D6
R9
S7 O.P
S10 PAL/MESECAM
S11 PAUSE
S1 POWER
35
32
30
25
22
23
13
10
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4
1
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34
44
28
PB10865-01-01
FRONT PWB
1
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FRONT CIRCUIT BOARD (for VR454/55)

‹PRE/REC PWBA› -for VR454/55-

MAIN COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
IC	
IC501	4C
TRANSISTOR	
Q503	7C
Q504	3E
Q505	4E
Q506	4E
Q507	6E
Q508	5E
Q512	5E
Q513	6D
Q514	6C

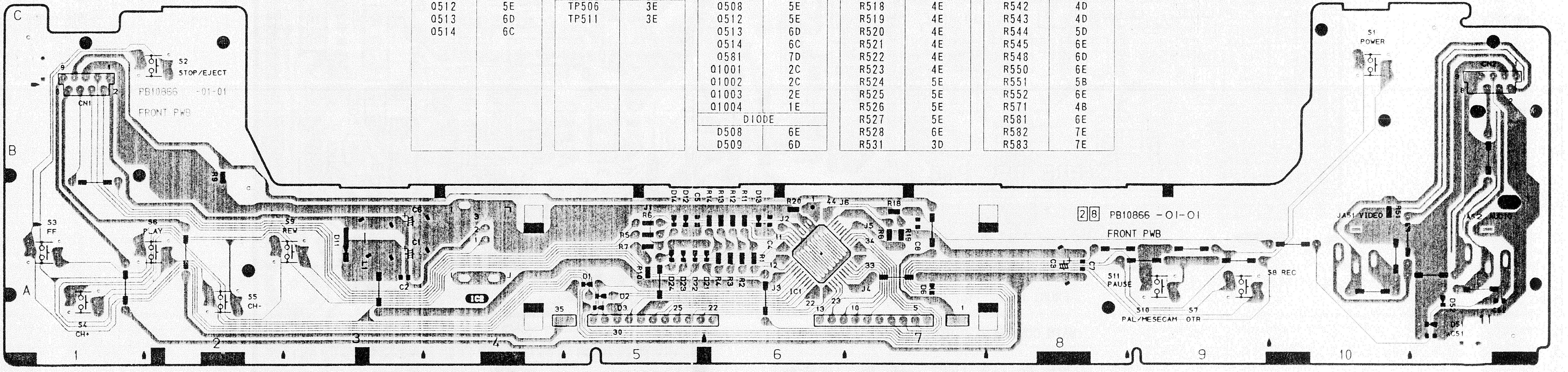
REF. No.	LOCATION
DIODE	
D501	7C
D502	6B
D505	5C
D508	6E
CONNECTOR	
CN501	7A
CN502	3C
TEST POINT	
TP506	3E
TP511	3E

LEADLESS COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
IC	
IC501	4C
IC581	7E
TRANSISTOR	
Q503	7C
Q504	3E
Q505	4E
Q506	4E
Q507	6E
Q508	5E
Q512	5E
Q513	6D
Q514	6C
Q581	7D
Q1001	2C
Q1002	2C
Q1003	2E
Q1004	1E
DIODE	
D508	6E
D509	6D

REF. No.	LOCATION
RESISTOR	
R501	7B
R509	7C
R510	7C
R511	7B
R514	7C
R515	3E
R516	3E
R517	4E
R518	4E
R519	4E
R520	4E
R521	4E
R522	4E
R523	4E
R524	5E
R525	5E
R526	5E
R527	5E
R528	6E
R531	3D

REF. No.	LOCATION
RESISTOR	
R532	3D
R533	3D
R534	3D
R535	7C
R536	5B
R537	6D
R540	7C
R541	4C
R542	4D
R543	4D
R544	5D
R545	6E
R548	6D
R550	6E
R551	5B
R552	6E
R571	4B
R581	6E
R582	7E
R583	7E



REF. No.	LOCATION
RESISTOR	
R585	6E
R586	6E
R587	7D
R588	7D
R589	6D
R590	7D
R1001	2D
R1002	2C
R1003	2C
R1004	2E
R1005	2E
R1006	2D
R1007	1E
R1008	1E
R1009	1D
R1010	1D
R1012	2C
R1013	1C

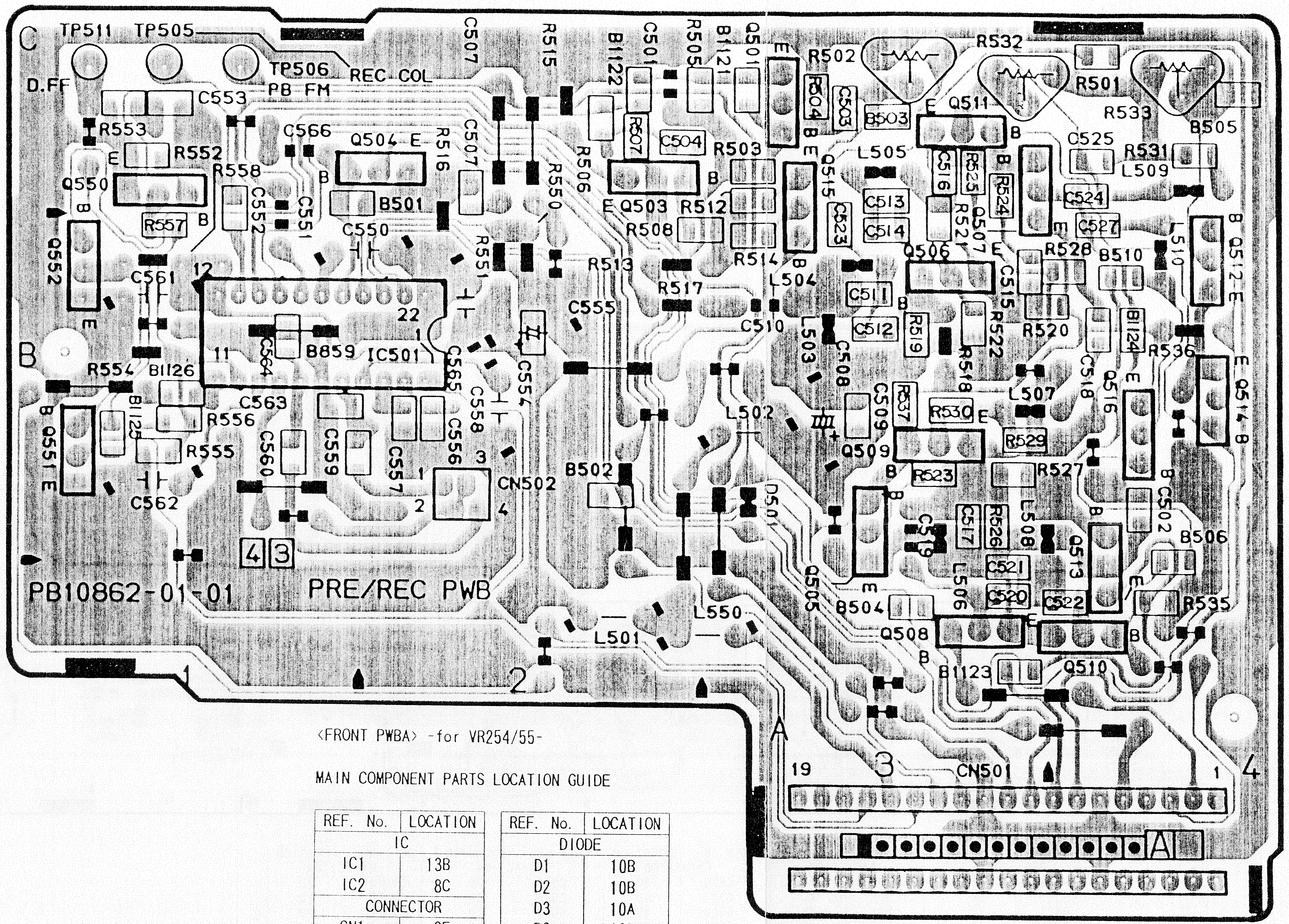
REF. No.	LOCATION
CAPACITOR	
C504	7A
C505	7C
C506	3E
C507	3E
C508	4E
C509	4E
C510	4E
C511	4E
C512	5E
C513	6D
C514	5E
C515	5E
C517	7D
C518	6B
C519	4E
C520	4B
C521	4C
C523	3C
C524	3D
C525	3D

REF. No.	LOCATION
CAPACITOR	
C526	3C
C527	4D
C528	4D
C529	3D
C530	4D
C531	4D
C532	3D
C540	7C
C541	5E
C543	5E
C546	3D
C547	6D
C549	4B
C550	5E
C551	5D
C554	3E
C556	4E
C582	7E
C583	7E
C584	7E

REF. No.	LOCATION
CAPACITOR	
C585	7D
C586	7D
C587	7D
C588	7D
C589	6D
C590	3E
C593	5C
C594	3E
C595	7C
C1001	2D
C1002	2C
C1003	2C
C1004	2C
C1005	2C
C1006	1C
C1007	1D
C1008	1C
C1010	1D
C1012	2D
C1013	2E

REF. No.	LOCATION
CAPACITOR	
C1014	2D
C1015	1D
C1016	2D
C1017	2C
C1018	1C

PRE/REC CIRCUIT BOARD


TP511
TP505
TP506
REC COL
PB FM
D.FF
PB10862-01-01
PRE/REC PWB
IC501
CN501
CN502
Q501
Q503
Q504
Q505
Q506
Q507
Q508
Q509
Q510
Q511
Q512
Q513
Q514
Q515
Q516
Q550
Q551
Q552
D501
L501
L502
L503
L504
L505
L506
L507
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L510
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B502
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B504
B505
B506
B510
B859
B1121
B1122
B1123
B1124
B1125
B1126
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B
C
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2
3
4
19

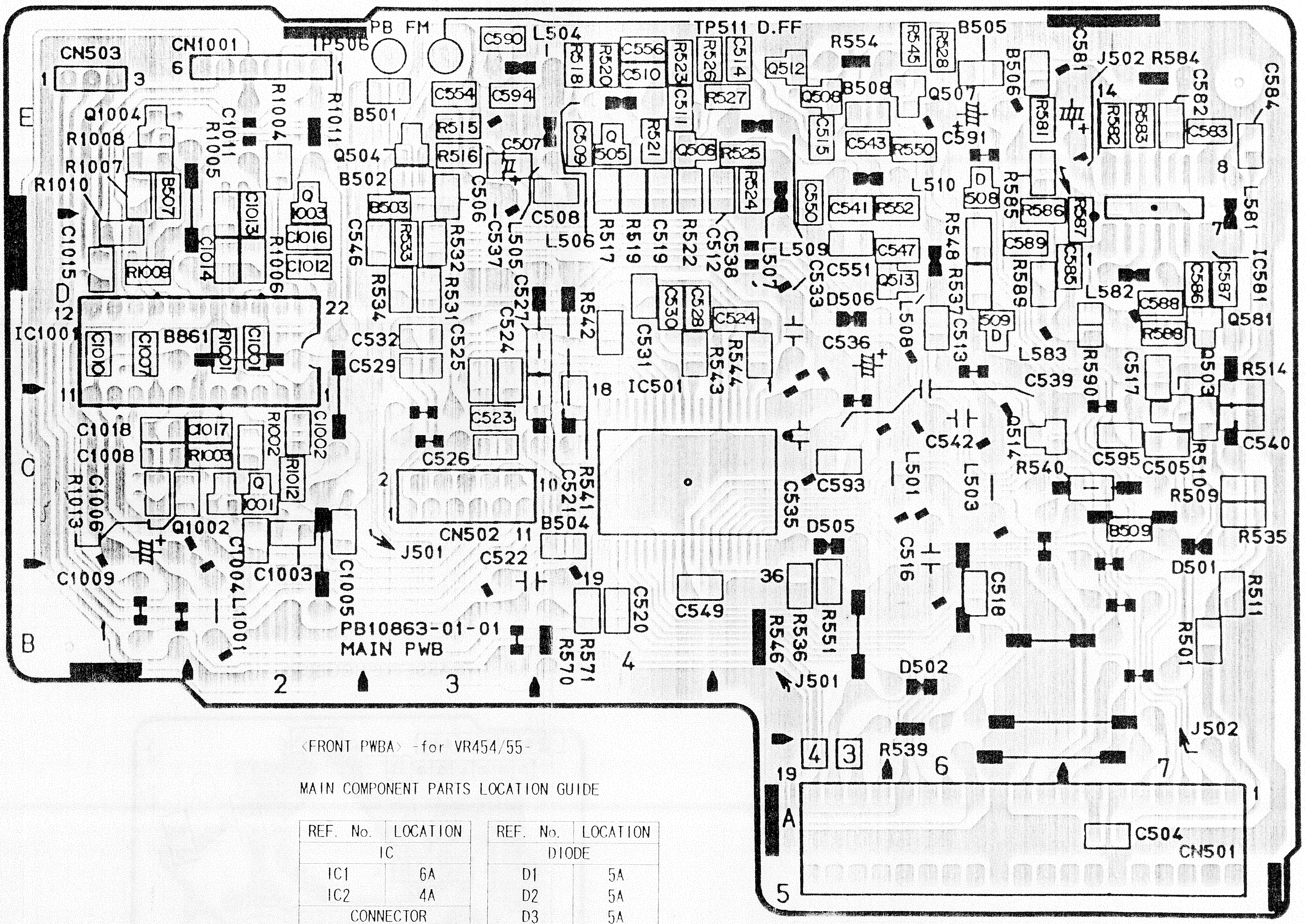
<FRONT PWBA> -for VR254/55-

MAIN COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
IC	
IC1	13B
IC2	8C
CONNECTOR	
CN1	2E

REF. No.	LOCATION
DIODE	
D1	10B
D2	10B
D3	10A
D6	16B
D22	11B
D23	11B

PRE/REC CIRCUIT BOARD (for VR454/55)


PB FM
TP506
TP511 D.FF
CN503
CN1001
CN502
CN501
IC1001
IC501
IC581
B861
J501
J502
PB10863-01-01
MAIN PWB
Q1001
Q1002
Q1003
Q1004
Q504
Q505
Q506
Q507
Q508
Q512
Q513
Q514
Q581
B501
B502
B503
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D501
D502
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L581
L582
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L1001
R554
R584
R1008
R1007
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R1003
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R1013
C1009
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C504
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R570
R571
R581
R582
R583
R585
R586
R587
R588
R589
R590
R501
R509
R510
R511
R514
A
B
C
D
E
1
2
3
4
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6
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8
11
12
14
18
19
22
36

<FRONT PWBA> -for VR454/55-

MAIN COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
IC	
IC1	6A
IC2	4A
CONNECTOR	
CN1	1B
CN2	11C

REF. No.	LOCATION
DIODE	
D1	5A
D2	5A
D3	5A
D6	7A
D21	5A
D22	5A
D51	11A
D52	11A

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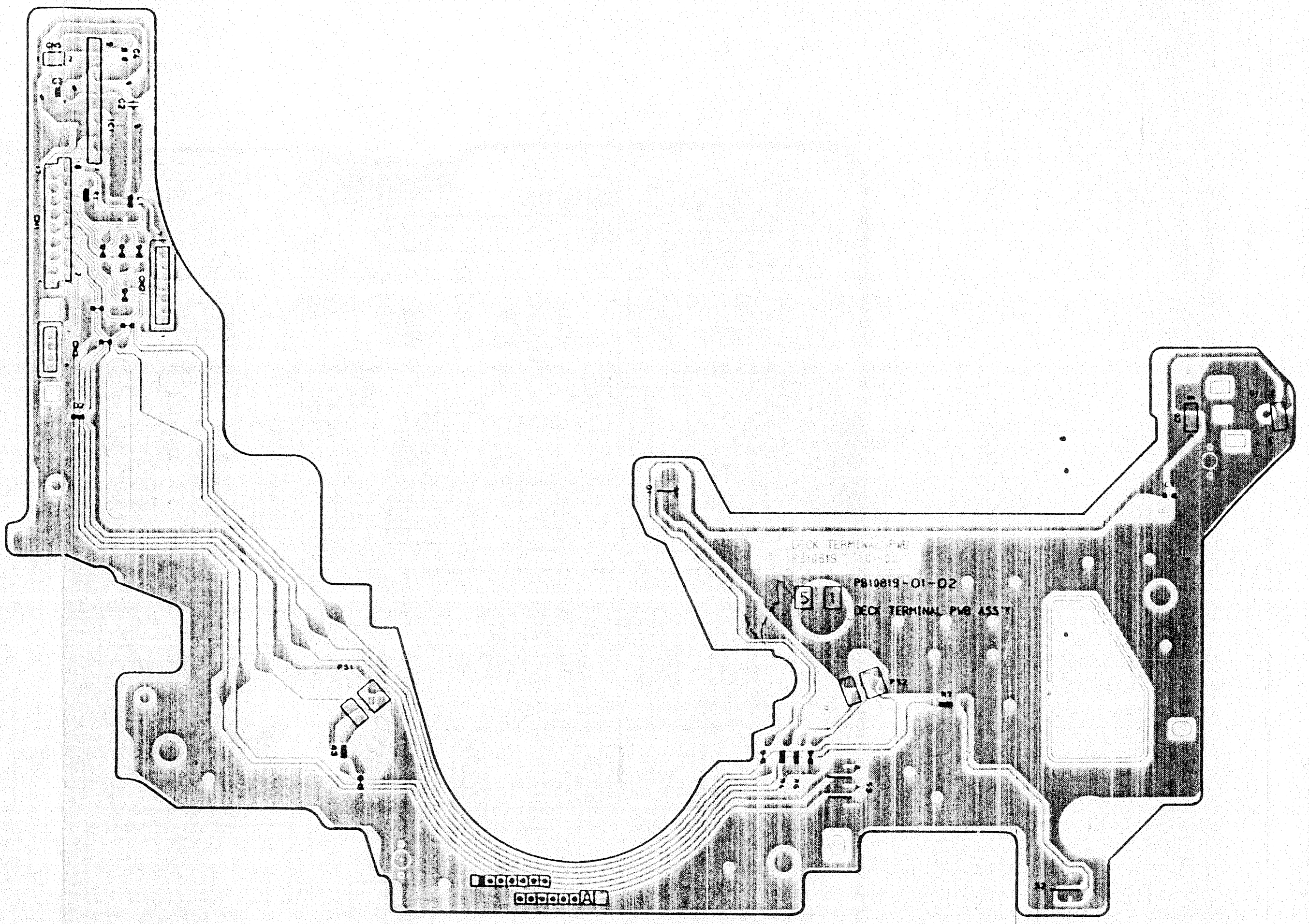
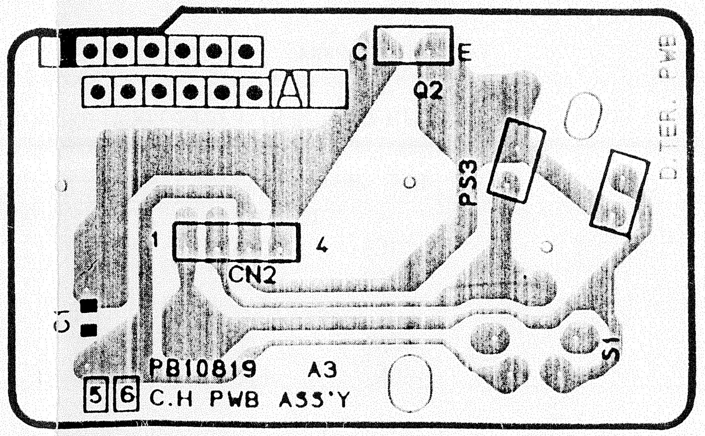
DECK. TERMINAL,CASS. HOUSING AND A/C HEAD CIRCUIT BOARDS

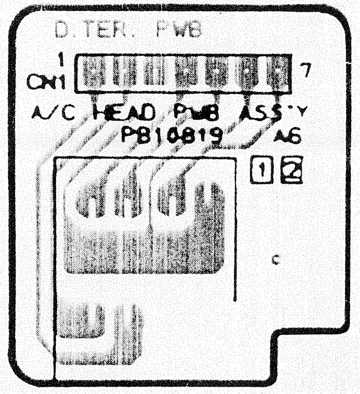
— DECK TERMINAL —


PB10819-01-02
DECK TERMINAL PWB ASS'Y
5
1
A1

— CASSETTE HOUSING —


A
C
E
Q2
D.TER. PWB
PS3
1
4
CN2
C1
S1
PB10819 A3
5
6
C.H PWB ASS'Y

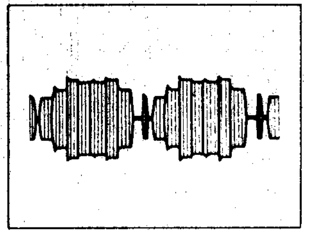
— A/C HEAD —


D.TER. PWB
1
CN1
7
A/C HEAD PWB ASS'Y
PB10819 A6
1
2

WAVEFORMS

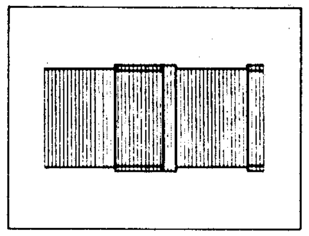
— VIDEO —

WF1 REC COLOR



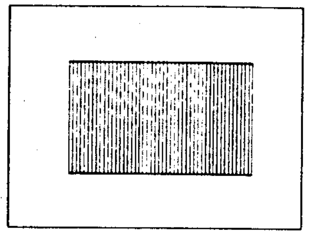
REC 0.23 Vp-p
10 mV/20 µsec/DIV

WF2 PB FM



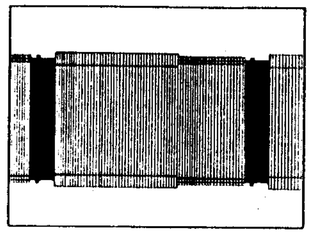
PB 0.42 Vp-p
10 mV/5 msec/DIV

WF3 REC FM



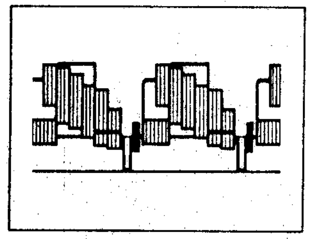
REC 0.65 Vp-p
20 mV/5 msec/DIV

WF4 PB FM/COLOR



PB 0.6 Vp-p
20 mV/5 msec/DIV

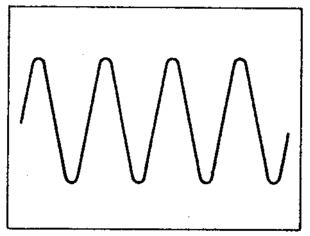
WF5 TP210 VIDEO OUT



REC/PB 2.0 VP-P
50 mV/20 µsec/DIV

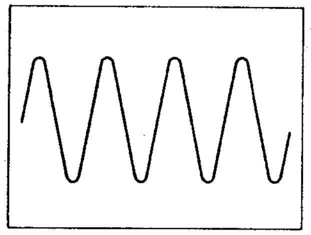
— AUDIO —

WF1 CN301-4 ERASE



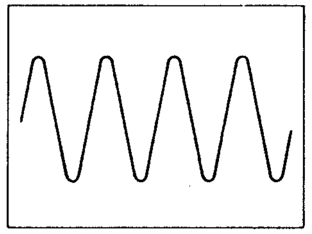
REC 44.0 Vp-p
1.0 V/10µsec/DIV

WF2 TP333 ERASE



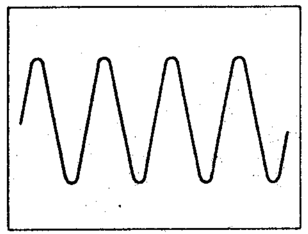
REC 36.0 Vp-p
1.0 V/10µsec/DIV

WF3 IC301-12



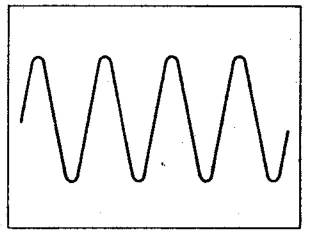
PB 0.13 Vp-p
5 mV/1 msec/DIV

WF4 IC301-16



REC 0.2 Vp-p
10 mV/1 msec/DIV

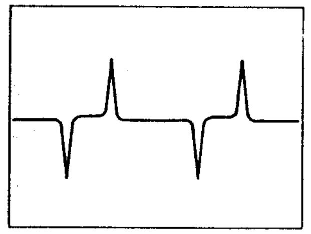
WF5 TP312 AUDIO OUT



REC/PB 1.6 Vp-p
50 mV/1 msec/DIV

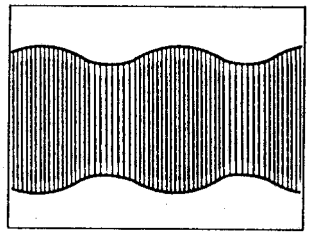
— SERVO —

WF1 TP401 CTL PULSE



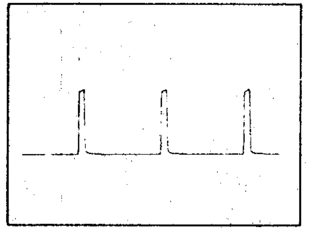
PB 2.5 Vp-p
50 mV/10 msec/DIV

WF2 CAP. FG



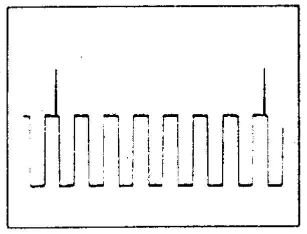
REC 2.0 Vp-p
0.1 V/10 msec/DIV

WF3 C. SYNC



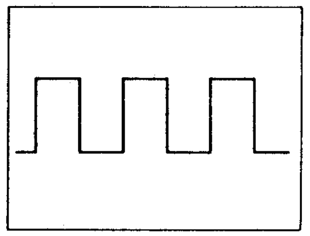
REC 4.2 Vp-p
0.1 V/20 µsec/DIV

WF4 D. PG/FG



REC/PB 4.2 Vp-p
0.1 V/5 msec/DIV

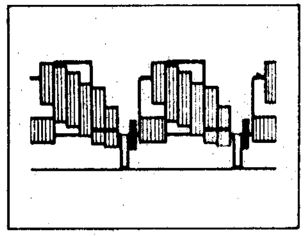
WF5 TP411 D. FF



REC/PB 4.4 Vp-p
0.2 V/10 msec/DIV

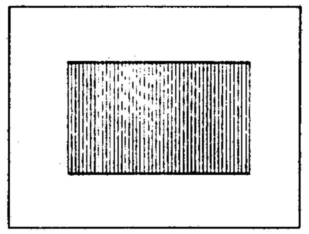
— VIDEO UNIT —

WF1 VIDEO OUT



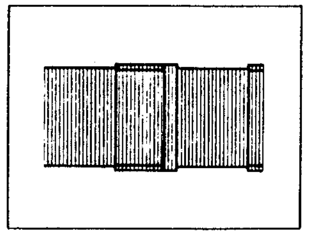
REC/PB 2.2 Vp-p
50 mV/20 µsec/DIV

WF2 REC FM



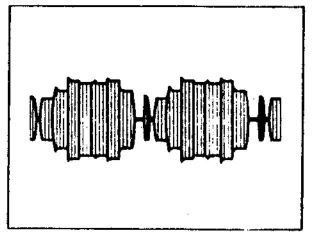
REC 0.68 Vp-p
20 mV/2 msec/DIV

WF3 PB FM



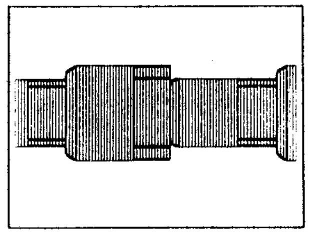
PB 0.44 Vp-p
10 mV/5 msec/DIV

WF4 REC COLOR



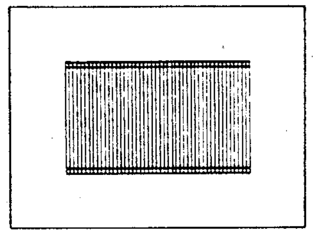
REC 0.22 Vp-p
5 mV/20 µsec/DIV

WF5 PB COLOR



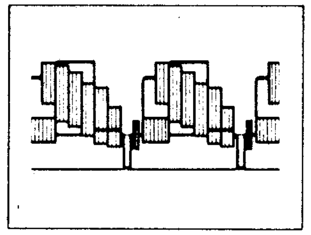
PB 0.36 Vp-p
10 mV/5 msec/DIV

WF6 REC FM



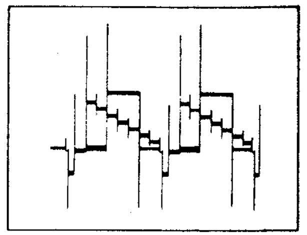
REC 1.3 Vp-p
50 mV/2 msec/DIV

WF7 IC2-14



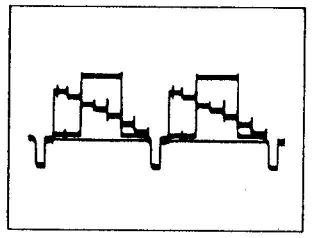
REC 1.1 Vp-p
20 mV/20 µsec/DIV

WF8 IC2-12



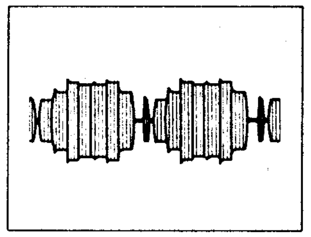
PB 0.32 Vp-p
10 mV/20 µsec/DIV

WF9 IC2-11



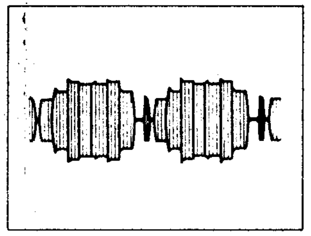
REC 0.52 Vp-p
20 mV/20 µsec/DIV

WF10 REC COLOR



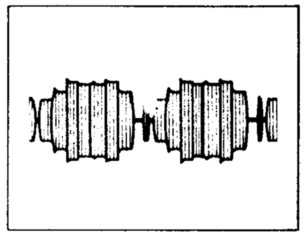
REC 0.4 Vp-p
10 mV/20 µsec/DIV

WF11 IC2-37



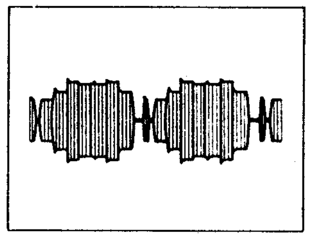
PB 0.8 Vp-p
20 mV/20 µsec/DIV

WF12 IC2-39



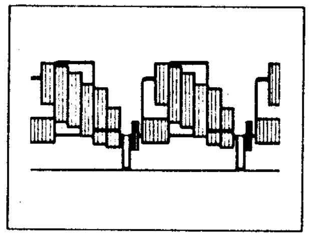
PB 0.8 Vp-p
20 mV/20 µsec/DIV

WF13 PB COLOR



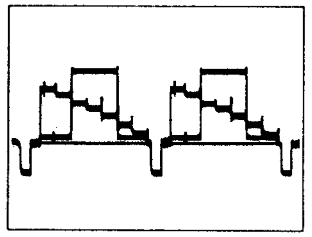
PB 0.08 Vp-p
5 mV/20 µsec/DIV

WF14 AUX IN



REC 1.1 Vp-p
20 mV/20 µsec/DIV

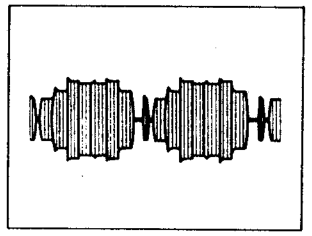
WF15 IC1-4



REC 0.3 Vp-p/PB 0.38 Vp-p
10 mV/20 µsec/DIV

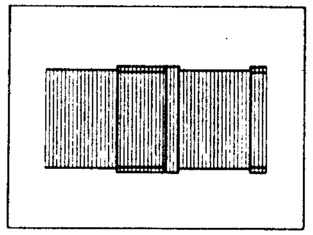
— PRE/REC —

WF1 REC COLOR



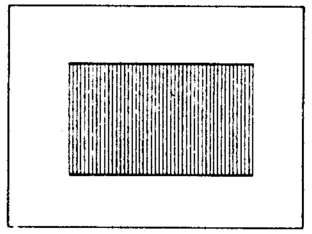
REC 0.23 Vp-p
5 mV/20 µsec/DIV

WF2 PB FM



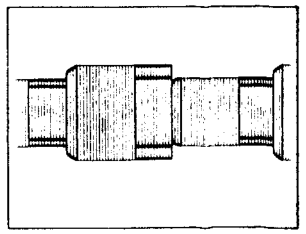
PB 0.42 Vp-p
10 mV/5 msec/DIV

WF3 REC FM



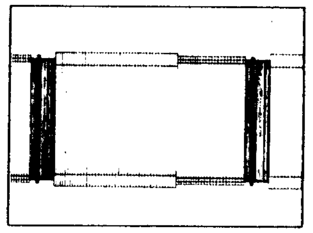
REC 0.65 Vp-p
20 mV/2 msec/DIV

WF4 TP506 PB FM/COLOR



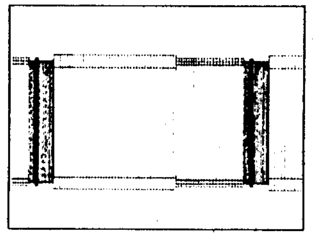
PB 0.6 Vp-p(VR454/55)
PB 0.4 Vp-p(VR254/55)
10 mV/5 msec/DIV

WF5 REC FM/COLOR



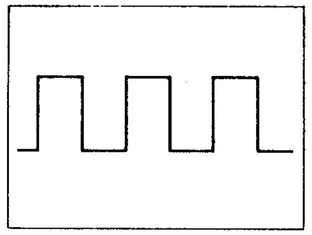
REC 0.22 Vp-p(VR454/55)
REC 0.3 Vp-p(VR254/55)
10 mV/5 msec/DIV

WF6 PB FM



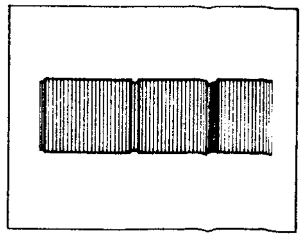
PB 0.5 Vp-p(VR454/55)
PB 0.34 Vp-p(VR254/55)
10 mV/5 msec/DIV

WF7 TP511 D. FF



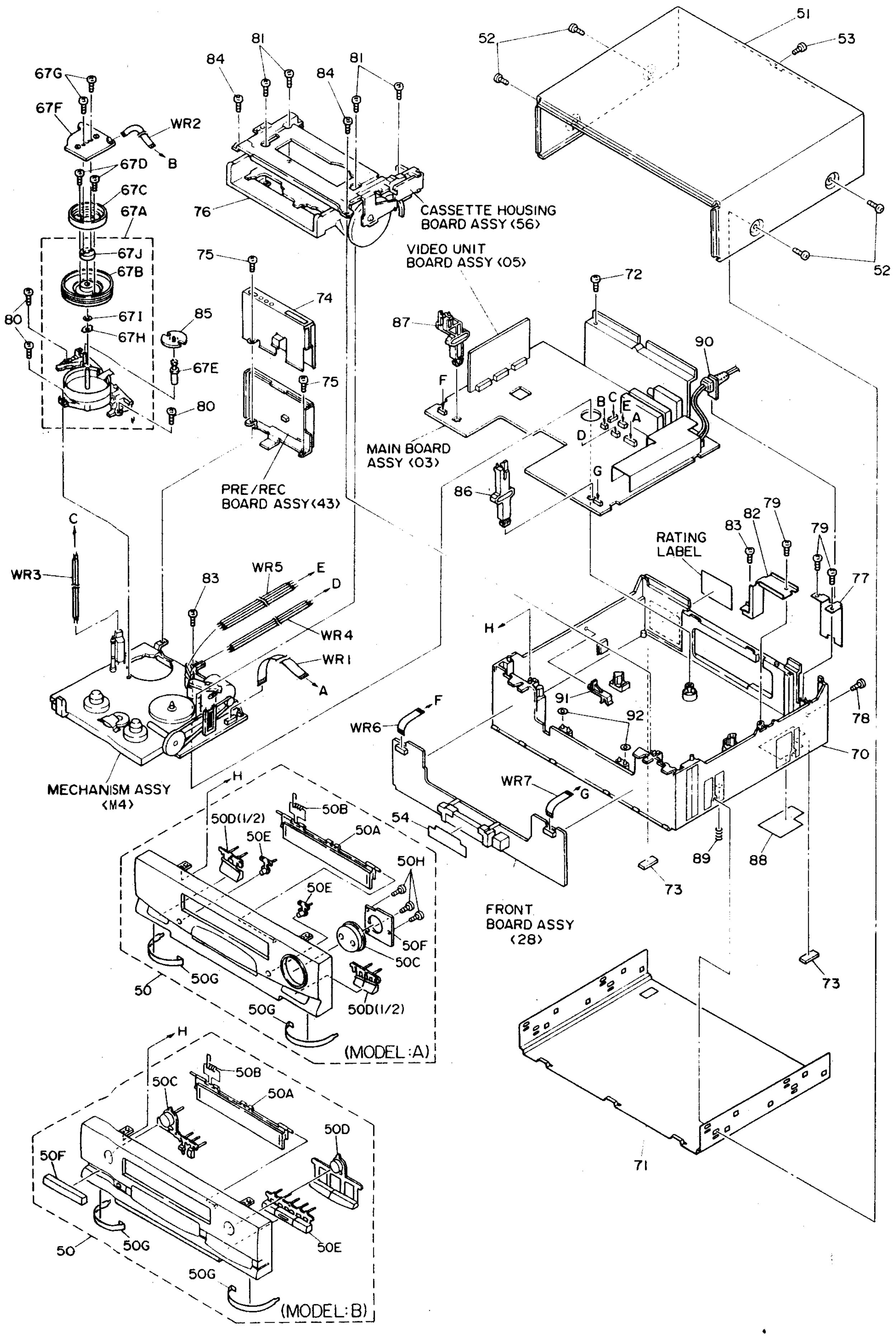
REC/PB 5.2 Vp-p
0.2 V/10 msec/DIV

WF8 SP COMMON

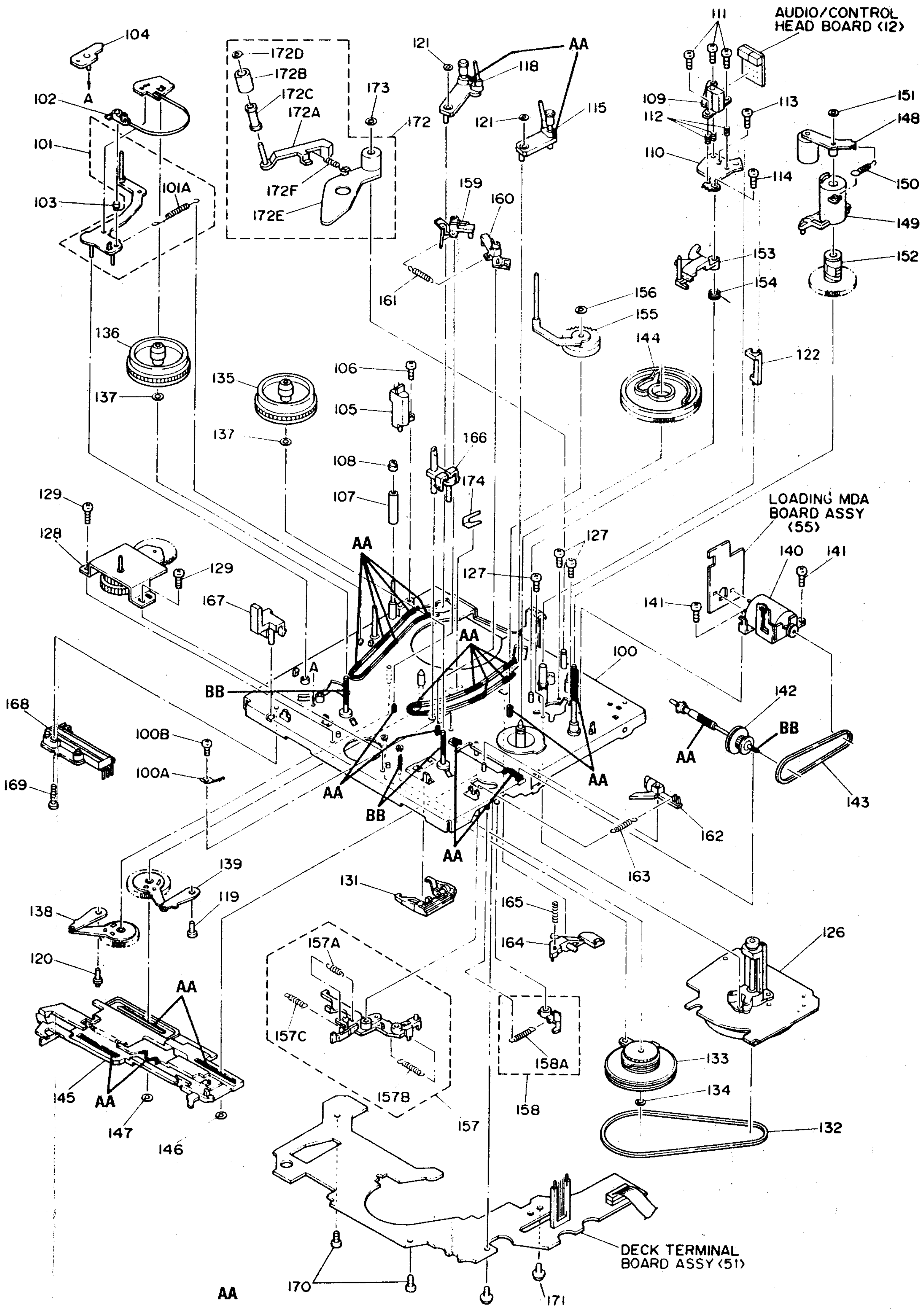


REC 1.6 Vp-p
50 mV/5 msec/DIV

EXPLODED VIEW


51
52
53
52
81
84
81
84
81
67G
67F
WR2
B
67D
67C
67A
67J
67B
67I
67H
67E
85
80
80
76
CASSETTE HOUSING
BOARD ASSY (56)
VIDEO UNIT
BOARD ASSY (05)
75
74
75
72
87
90
F
B
C
E
A
D
MAIN BOARD
ASSY (03)
G
86
PRE/REC
BOARD ASSY (43)
C
WR3
83
WR5
E
D
WR4
WR1
A
MECHANISM ASSY
(M4)
RATING
LABEL
83
82
79
79
77
H
91
92
WR6
F
78
70
WR7
G
54
89
88
73
73
H
50D(1/2)
50B
50E
50A
50H
50E
50F
50C
50G
50
50G
50D(1/2)
(MODEL:A)
FRONT
BOARD ASSY
(28)
71
H
50B
50C
50A
50D
50F
50
50G
50G
50E
(MODEL:B)

MACHANISM EXPLODED VIEW


104
102
A
101
103
101A
172D
172B
172C
172A
172F
172E
173
172
121
AA
118
121
115
111
AUDIO/CONTROL
HEAD BOARD (12)
109
112
113
110
114
151
148
150
149
152
159
160
161
153
154
156
155
144
122
136
137
135
137
106
105
108
107
166
174
129
128
129
167
AA
127
127
LOADING MDA
BOARD ASSY
(55)
140
141
141
AA
A
BB
100
142
BB
AA
143
168
100B
100A
169
AA
BB
AA
AA
162
163
139
119
138
131
165
164
120
126
AA
157A
157C
157B
157
158A
158
133
134
132
145
AA
147
146
DECK TERMINAL
BOARD ASSY (51)
170
171

AA

BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

PARTLIST FOR VR254/55 & VR454/55

NOTE : $ *denotes safety component*

MISCELLANEOUS

-VR254/55-

10	4822 736 53987		INSTRUCTIONS
11	4822 736 53988		INSTRUCTIONS
13	4822 218 30773		REMOTE CONTROLLER

-VR454/55-

10	4822 736 53989		INSTRUCTIONS
11	4822 736 53991		INSTRUCTIONS
13	4822 218 30774		REMOTE CONTROLLER

CABINET AND CHASSIS ASSMEBLY

50A	4822 443 64182		CASSETTE HOUSING DOOR (VR254/55)
50A	4822 443 64181		CASSETTE HOUSING DOOR (VR454/55)
50B	4822 492 42629		TORSION SPRING
50C	4822 410 63254		BUTTON (1) (VR254/55)
50C	4822 410 63257		BUTTON (1) (VR454/55)
50D	4822 410 63255		BUTTON (2) (VR254/55)
50D	4822 410 63258		BUTTON (2) (VR454/55)
50E	4822 410 63256		BUTTON (3).X2 (VR254/55)
50E	4822 410 63259		BUTTON (3) (VR454/55)
50F	4822 459 61225		BASE(BUTTON) (VR254/55)
50F	4822 443 64183		COVER(FRONT 1) (VR454/55)
50H	4822 502 30466		SCREW,X3 (VR254/55)
51	4822 443 41447		TOP COVER (VR254/55)
51	4822 443 41448		TOP COVER (VR454/55)
52	4822 502 13813		SPECIAL SCREW.X4
53	4822 502 30729		SCREW
54	4822 480 40243		FILTER(FDP)
67A	4822 691 20956		DRUM SUB ASSEMBLY (VR254/55)
67A	4822 691 20955		DRUM SUB ASSEMBLY (VR454/55)
67B	4822 691 20957		UPPER DRUM ASSEMBLY (VR254/55)
67B	4822 691 20958		UPPER DRUM ASSEMBLY (VR454/55)
67C	4822 362 20241		ROTOR ASSEMBLY
67D	4822 502 12111		SCREW.X2
67E	4822 528 90873		ROLLER ASSEMBLY
67F	4822 362 10273	$	STATOR ASSEMBLY
67G	4822 502 13277		SCREW.X2
67H	4822 479 30165		BRUSH ASSEMBLY
67I	4822 532 12258		WASHER
67J	4822 532 12281		COLLAR ASSEMBLY
71	4822 443 41449		BOTTOM COVER
72	4822 502 13817		SCREW
73	4822 462 42041		FOOT,X2
74	4822 462 50489		SHIELD CASE,PRE
75	4822 503 21007		SCREW,X2 PRE
76	4822 691 20942		CASSETTE HOUSING ASSEMBLY
78	4822 502 13815		SPECIAL SCREW,BRACKET
79	4822 502 13817		SCREW,X3 BRACKET
80	4822 502 21255		SCREW,X3 DRUM
81	4822 502 13818		SCREW,X4 CASSETTE HOUSING
82	4822 403 71174		BRACKET(MECHA)
83	4822 502 13814		SPECIAL SCREW.X2 MECHA
84	4822 502 13817		SCREW.X2 CASSETTE HOUSING
85	4822 528 90827		INERTIA PLATE
89	4822 492 52406		COMPRESSION SPRING
90	4822 321 11073		POWER CORD
92	4822 532 12285		WASHER.X2
WR1	4822 736 60001		FFC WIRE.D/T
WR2	4822 321 62487		FFC.DRUM
WR3	4822 321 62607		WIRE.FE
WR4	4822 321 62483		WIRE.CTL
WR5	4822 321 62095		WIRE.AUDIO
WR6	4822 321 62485		FFC WIRE.M.CN810 B
WR7	4822 321 62485		FFC WIRE.M.CN802

MECHANISM ASSEMBLY

100A	4822 492 70943		EARTH PLATE
100B	4822 502 13828		SCREW
101	4822 403 70963		TENSION ARM ASSEMBLY
101A	4822 492 33295		TENSION SPRING
102	4822 401 11421		TENSION BAND ASSEMBLY
103	4822 535 93247		ADJUST PIN
104	4822 403 70455		TENSION BAND BRACKET-3
105	4822 249 40307		FULL ERASE HEAD
106	4822 502 13816		SCREW,F E HEAD
107	4822 528 90823		ROLLER
108	4822 462 71778		GUIDE POLE CAP
109	4822 249 10444		AUDIO CONTROL HEAD
110	4822 464 50858		HEAD BASE
111	4822 502 13812		SPECIAL SCREW,X3
112	4822 492 52267		COMPRESSION SPRING.X3
113	4822 502 30531		SCREW
114	4822 502 13277		SCREW
115	4822 403 71176		POLE BASE ASSY(TAKE UP)
118	4822 403 71177		POLE BASE ASSY(SUPPLY)
119	4822 462 71867		STOPPER(T)
120	4822 462 71866		STOPPER(S)
121	4822 532 52533		SLIT WASHER.X2
122	4822 528 90868		TAPE GUARD
126	4822 361 60503	$	CAPSTAN MOTOR
127	4822 502 12949		SCREW.X3
128	4822 522 33502		IDLER GEAR UNIT
129	4822 502 30471		SCREW,X2
131	4822 403 70976		CHANGE LEVER ASSEMBLY
132	4822 358 31143		TIMER BELT
133	4822 528 30413		CLUTCH UNIT
134	4822 532 12105		SLIT WASHER
135	4822 528 10887		REEL DISK ASSY(TAKE UP)
136	4822 528 81452		REEL DISK (SUPPLY)
137	4822 532 52355		SPACER.X2
138	4822 403 70964		LOADING ARM ASSY (SUPPLY)
139	4822 403 70965		LOADING ARM ASSY(TAKE UP)
140	4822 361 21576		LOADING MOTOR ASSEMBLY
141	4822 502 30471		SCREW,X2
142	4822 528 30409		WORM CLUTCH ASSEMBLY
143	4822 358 31142		BELT
144	4822 522 33108		CONTROL CAM
145	4822 466 83023		PLATE ASSY
146	4822 532 12103		SLIT WASHER
147	4822 532 12105		SLIT WASHER
148	4822 403 70447		PINCH ROLLER ARM ASSEMBLY
149	4822 403 70441		PINCH ROLLER PRESS LEVER
150	4822 492 33287		TENSION SPRING
151	4822 532 12103		SLIT WASHER
152	4822 522 33109		PINCH ROLLER CAM
153	4822 403 70448		GUIDE ARM ASSY
154	4822 492 42564		TORSION SPRING

155	4822 522 33473	HALF LOADING GEAR ASSY
156	4822 532 12104	SLIT WASHER
157	4822 403 71175	CANCELL LEVER ASSY
157A	4822 492 33293	TENSION SPRING
157B	4822 492 33289	TENSION SPRING
157C	4822 492 33294	TENSION SPRING
158	4822 403 70451	HOOK ASSEMBLY
158A	4822 492 33291	TENSION SPRING
159	4822 403 10315	MAIN BRAKE ASSY(SUPPLY)
160	4822 403 10316	MAIN BRAKE ASSY(TAKE UP)
161	4822 492 33292	TENSION SPRING
162	4822 403 70736	SUB BRAKE ASSY(TAKE UP)
163	4822 492 33288	TENSION SPRING
164	4822 403 70715	CAPSTAN BRAKE ASSEMBLY
165	4822 492 52334	COMPRESSION SPRING
166	4822 381 11429	LED PRISM
167	4822 276 13134	REC SAFETY SWITCH
168	4822 277 21697	SLIDE SWITCH
169	4822 502 13816	SCREW
170	4822 502 13819	SCREW,X2
171	4822 502 13809	SCREW,X2
172	4822 403 71094	CLEANER ASSEMBLY
172A	4822 528 90869	CLEANER
172B	4822 528 70839	CLEANER ROLLER
172C	4822 532 12192	SLIT WASHER
172D	4822 532 12273	CLEANER LEVER
172E	4822 492 42683	TORSION SPRING
173	4822 532 11797	SLIT WASHER

MAIN BOARD ASSEMBLY

ETH1	4822 492 71387		EARTH PLATE
SCW1	4822 502 13827		SCREW,RF CONVERTER
SCW2	4822 502 30731		SCREW,X2 TERMINAL BOARD
JA702	4822 265 31106		PIN JACK,V IN/OUT
JA703	4822 265 31141		PIN JACK,A IN/OUT
CN201	4822 267 51374		CONNECTOR,(2-16) PRE/REC (VR254/55)
CN201	4822 267 31793		CONNECTOR,(2-19) PRE/REC (VR454/55)
CN301	4822 265 31111		CONNECTOR,(1-4) A/C HEAD
CN302	4822 265 20646		CONNECTOR,(1-2) FE HEAD
CN401	4822 265 31143		CONNECTOR,(1-3) A/C HEAD
CN402	4822 267 41115		CONNECTOR,(1-4) DRUM MOTOR
CN601	4822 267 51364		CONNECTOR,(1-18) DECK TERMINAL
CN801	4822 267 31776	$	CONNECTOR,(1-2) POWER CORD
CN802	4822 267 51373		CONNECTOR,(1-9) FRONT
CN810	4822 267 51373		CONNECTOR,(1-9) FRONT (VR454/55)

-TUNER SECTION-

RF1	4822 214 33887	$	RF CONVERTER
TNR1	4822 210 10606	$	TUNER
TNR2	4822 210 10607	$	IF UNIT
IC1	4822 209 30246		IC (AN1358)
Q1	4822 130 61906		TRANSISTOR
Q2	4822 130 62589		TRANSISTOR
Q3	4822 130 62793		TRANSISTOR
Q6	4822 130 60669		TRANSISTOR
Q7	4822 130 60862		TRANSISTOR
Q8	4822 130 60862		TRANSISTOR
Q9	4822 130 60862		TRANSISTOR
Q10	4822 130 63628		TRANSISTOR
Q11	4822 130 61544		TRANSISTOR
Q12	4822 130 62796		FE TRANSISTOR
Q13	4822 130 60856		TRANSISTOR
Q14	4822 130 60669		TRANSISTOR
Q15	4822 130 60862		TRANSISTOR
Q16	4822 130 60669		TRANSISTOR
D1	4822 209 83931		ZENER DIODE
D2	4822 130 32778		DIODE
D3	4822 130 32778		DIODE
D4	4822 130 32778		DIODE
R1	4822 116 83155		RESISTOR 1.5kR,1/10W
R2	4822 116 83156		RESISTOR 15kR,1/10W
R3	4822 116 83174		RESISTOR 330R,1/10W
R4	4822 116 83145		RESISTOR 1kR,1/10W
R6	4822 116 83164		RESISTOR 22kR,1/10W
R7	4822 116 83164		RESISTOR 22kR,1/10W
R8	4822 116 83157		RESISTOR 150kR,1/10W
R9	4822 116 83157		RESISTOR 150kR,1/10W
R10	4822 116 83176		RESISTOR 33kR,1/10W
R11	4822 116 83167		RESISTOR 270R,1/10W
R12	4822 116 83146		RESISTOR 10kR,1/10W
R13	4822 116 83146		RESISTOR 10kR,1/10W
R14	4822 116 83156		RESISTOR 15kR,1/10W
R15	4822 116 83159		RESISTOR 1.8kR,1/10W
R16	4822 116 83156		RESISTOR 15kR,1/10W
R17	4822 116 83159		RESISTOR 1.8kR,1/10W
R18	4822 116 83156		RESISTOR 15kR,1/10W
R19	4822 116 83159		RESISTOR 1.8kR,1/10W
R21	4822 116 83165		RESISTOR 220kR,1/10W
R22	4822 116 83188		RESISTOR 560kR,1/10W
R23	4822 116 83168		RESISTOR 2.7kR,1/10W
R24	4822 116 83163		RESISTOR 2.2kR,1/10W
R25	4822 116 83183		RESISTOR 47kR,1/10W
R26	4822 116 83183		RESISTOR 47kR,1/10W
R27	4822 116 83183		RESISTOR 47kR,1/10W
R28	4822 116 83163		RESISTOR 2.2kR,1/10W
R29	4822 116 83146		RESISTOR 10kR,1/10W
R30	4822 116 83148		RESISTOR 1MR,1/10W
R31	4822 116 83193		RESISTOR 68kR,1/10W
R32	4822 117 10019		RESISTOR 39kR,1/10W
R33	4822 116 83195		RESISTOR 820R,1/10W
R34	4822 116 83163		RESISTOR 2.2kR,1/10W
R35	4822 116 83164		RESISTOR 22kR,1/10W
R36	4822 116 83156		RESISTOR 15kR,1/10W
R37	4822 116 83146		RESISTOR 10kR,1/10W
R38	4822 116 83192		RESISTOR 6.8kR,1/10W
R39	4822 116 83151		RESISTOR 12kR,1/10W
C1	4822 124 80715		E CAPACITOR 33UF,16V
C2	4822 121 43963		F CAPACITOR 0.015UF,50V
C3	4822 121 43966		F CAPACITOR 0.033UF,50V
C4	4822 126 11611		CAPACITOR 0.01UF,25V
C5	4822 124 23851		E CAPACITOR 10UF,50V
C6	4822 124 23286		E CAPACITOR 10UF,16V
C7	4822 124 23851		E CAPACITOR 10UF,50V
C11	4822 126 11651		CAPACITOR 0.0012UF,50V
C12	4822 124 80946		E CAPACITOR 0.22UF,50V
C13	4822 126 11613		CAPACITOR 0.0022UF,50V
C14	4822 126 11636		CAPACITOR 0.022UF,50V
C15	4822 124 23854		E CAPACITOR 0.47UF,50V
C17	4822 124 23852		E CAPACITOR 2.2UF,50V
T1	4822 157 70714		COIL
WR1	4822 321 61775		COAXIAL CABLE

-VIDEO SECTION-

IC270	4822 209 31897	IC (BA7045)
Q201	4822 130 41698	TRANSISTOR
Q202	4822 130 41698	TRANSISTOR
Q203	4822 130 42431	TRANSISTOR
Q270	4822 130 41698	TRANSISTOR
Q271	4822 130 41698	TRANSISTOR
Q272	4822 130 42431	TRANSISTOR
Q273	4822 130 42431	TRANSISTOR
D201	4822 130 32778	DIODE (VR254/55)
D202	4822 130 32778	DIODE
D250	4822 130 32778	DIODE
R201	4822 050 13901	RESISTOR 390R,1/2W
R202	4822 116 81538	RESISTOR 15kR,1/6W
R203	4822 116 83146	RESISTOR 10kR,1/10W
R204	4822 116 81536	RESISTOR 1kR,1/6W
R205	4822 116 83194	RESISTOR 75R,1/10W
R206	4822 116 83145	RESISTOR 1kR,1/10W
R207	4822 116 83145	RESISTOR 1kR,1/10W
R208	4822 116 83155	RESISTOR 1.5kR,1/10W
R209	4822 116 83186	RESISTOR 5.6kR,1/10W
R210	4822 116 83186	RESISTOR 5.6kR,1/10W
R211	4822 117 10502	RESISTOR 36kR,1/10W
R212	4822 116 83176	RESISTOR 33kR,1/10W (VR254/55)
R214	4822 116 83163	RESISTOR 2.2kR,1/10W
R220	4822 116 83147	RESISTOR 100kR,1/10W (VR254/55)
R220	4822 116 83142	RESISTOR 0R,1/10W (VR454/55)
R221	4822 116 83185	RESISTOR 560R,1/10W
R222	4822 116 83145	RESISTOR 1kR,1/10W (VR454/55)
R223	4822 116 83192	RESISTOR 6.8kR,1/10W
R270	4822 116 83167	RESISTOR 270R,1/10W
R271	4822 116 83167	RESISTOR 270R,1/10W
R272	4822 116 83341	RESISTOR 1.1kR,1/10W
R273	4822 116 83156	RESISTOR 15kR,1/10W
R274	4822 116 83182	RESISTOR 4.7kR,1/10W
R275	4822 116 83163	RESISTOR 2.2kR,1/10W
R276	4822 117 10016	RESISTOR 1.2kR,1/10W
R277	4822 116 81751	RESISTOR 5.6kR,1/6W
R278	4822 116 83146	RESISTOR 10kR,1/10W
R279	4822 116 83181	RESISTOR 470R,1/10W
R280	4822 111 31002	RESISTOR 3.6kR,1/6W
R283	4822 117 10504	RESISTOR 75kR,1/10W
R284	4822 116 83171	RESISTOR 270kR,1/10W
R285	4822 116 83192	RESISTOR 6.8kR,1/10W
R286	4822 116 83145	RESISTOR 1kR,1/10W
R287	4822 116 83195	RESISTOR 820R,1/10W
R290	4822 117 10437	RESISTOR 510R,1/10W
R291	4822 116 83145	RESISTOR 1kR,1/10W
C201	4822 124 23841	E CAPACITOR 1000UF,6.3V
C202	4822 124 23846	E CAPACITOR 47UF,16V
C203	4822 126 11601	CAPACITOR 0.01UF,50V
C204	4822 124 23846	E CAPACITOR 47UF,16V
C205	4822 124 23848	E CAPACITOR 4.7UF,25V
C207	4822 126 11601	CAPACITOR,B 0.01UF,50V
C208	4822 126 11601	CAPACITOR 0.01UF,50V
C210	4822 126 13055	CAPACITOR 0.047UF,50V
C211	4822 126 12383	CAPACITOR 0.001UF,50V
C270	4822 126 11601	CAPACITOR 0.01UF,50V
C271	4822 126 11601	CAPACITOR 0.01UF,50V
C272	4822 126 11601	CAPACITOR 0.01UF,50V
C273	4822 126 11647	CAPACITOR 0.01UF,16V
C274	4822 124 23843	E CAPACITOR 47UF,10V
C275	4822 126 11601	CAPACITOR 0.01UF,50V
C276	4822 126 12899	CAPACITOR 20pF,160V
C278	4822 126 13321	CAPACITOR 15pF,160V
C279	4822 126 11601	CAPACITOR 0.01UF,50V
C280	4822 126 12901	CAPACITOR 24pF,160V
C281	4822 126 12903	CAPACITOR 0.0027UF,50V
C282	4822 124 23287	E CAPACITOR 1UF,50V
C283	4822 126 11601	CAPACITOR 0.01UF,50V
C284	4822 126 12897	CAPACITOR 20pF,16V
C286	4822 126 11833	CAPACITOR 27pF,50V
C287	4822 126 12894	CAPACITOR 4pF,50V
C288	4822 126 11601	CAPACITOR 0.01UF,50V
C289	4822 126 12384	CAPACITOR 33pF,50V
C612	4822 124 80806	E CAPACITOR 100UF,6.3V
C836	4822 124 80948	E CAPACITOR 470UF,10V
C851	4822 124 80806	E CAPACITOR 100UF,6.3V
C855	4822 124 80806	E CAPACITOR 100UF,6.3V
L201	4822 157 60104	COIL 100UH
L270	4822 157 60104	COIL 100UH
L271	4822 157 70137	COIL 39UH
L272	4822 157 62372	COIL 10UH
L273	4822 157 90157	COIL 27UH
DL270	4822 320 40304	DELAY LINE

-AUDIO SECTION-

IC301	4822 209 32735	IC (BA7795LS)
Q303	4822 130 42431	TRANSISTOR
Q304	4822 130 61565	TRANSISTOR
Q305	4822 130 61565	TRANSISTOR
D303	4822 130 32778	DIODE
R319	4822 116 83145	RESISTOR 1kR,1/10W
R320	4822 116 83145	RESISTOR 1kR,1/10W
R322	4822 116 83169	RESISTOR 27kR,1/10W
R323	4822 116 83192	RESISTOR 6.8kR,1/10W
R324	4822 116 83192	RESISTOR 6.8kR,1/10W
R325	4822 116 83151	RESISTOR 12kR,1/10W
R326	4822 117 10431	RESISTOR 3.3R,1/10W
R327	4822 117 10435	RESISTOR 82R,1/6W
R328	4822 050 23903	RESISTOR 39kR,1/6W
R329	4822 116 83151	RESISTOR 12kR,1/10W
R330	4822 116 83186	RESISTOR 5.6kR,1/10W
R331	4822 117 10016	RESISTOR 1.2kR,1/10W
R332	4822 116 83167	RESISTOR 270R,1/10W
R333	4822 116 83156	RESISTOR 15kR,1/10W
R334	4822 116 83185	RESISTOR 560R,1/10W (VR454/55)
R335	4822 116 83164	RESISTOR 22kR,1/10W
R336	4822 117 10433	RESISTOR 82R,1/10W
R337	4822 116 83171	RESISTOR 270kR,1/10W
R338	4822 116 83196	RESISTOR 8.2kR,1/10W
R339	4822 116 83192	RESISTOR 6.8kR,10W(V R454/55)
R340	4822 116 83182	RESISTOR 4.7kR,1/10W
R341	4822 116 83192	RESISTOR 6.8kR,1/10W
R342	4822 116 83184	RESISTOR 4.7MR,1/10W
R343	4822 116 83161	RESISTOR 18kR,1/10W
R344	4822 116 81694	RESISTOR 47kR,1/6W
R345	4822 116 83156	RESISTOR 15kR,1/10W
R346	4822 116 83156	RESISTOR 15kR,1/10W
R347	4822 116 83183	RESISTOR 47kR,1/10W
R348	4822 050 11803	RESISTOR 18kR,1/6W
R349	4822 116 83146	RESISTOR 10kR,1/10W
R350	4822 050 11203	RESISTOR 12kR,1/6W

R351	4822 116 83183		RESISTOR 47kR,1/10W
R352	4822 050 12703		RESISTOR 27kR,1/6W
R353	4822 117 10017		RESISTOR 220R,1/10W
R354	4822 116 81536		RESISTOR 1kR,1/6W
R355	4822 116 81536		RESISTOR 1kR,1/6W
C313	4822 126 11614		CAPACITOR 330pF,50V
C314	4822 121 43968		F CAPACITOR 0.082UF,50V
C315	4822 124 23851		E CAPACITOR 10UF,50V
C316	4822 126 11654		CAPACITOR 0.0047UF,50V
C317	4822 126 12466		CAPACITOR 0.022UF,50V
C318	4822 126 11613		CAPACITOR,B 0.0022UF,50V
C319	4822 124 23846		E CAPACITOR 47UF,16V
C320	4822 126 12911		CAPACITOR 0.015UF,25V
C321	4822 124 23287		E CAPACITOR 1UF,50V
C322	4822 126 13318		CAPACITOR,B 0.022UF,25V
C323	4822 126 12904		CAPACITOR 680pF,50V
C324	4822 124 23848		E CAPACITOR 4.7UF,25V
C325	4822 124 80715		E CAPACITOR 33UF,16V
C326	4822 126 12463		CAPACITOR 0.012UF,50V
C327	4822 126 12801		CAPACITOR 0.022UF,25V
C328	4822 124 80945		E CAPACITOR 22UF,25V
C329	4822 126 12801		CAPACITOR 0.022UF,25V
C330	4822 126 12801		CAPACITOR 0.022UF,25V
C331	4822 124 23851		E CAPACITOR 10UF,50V
C347	4822 124 23851		E CAPACITOR 10UF,50V
L303	4822 157 63399		COIL 12mH
T301	4822 148 81344	$	OSC TRANSFORMER

-SERVO SECTION-

IC401	4822 209 32536		IC (JCP0039)
IC402	4822 209 31899		IC (LVA521S)
Q441	4822 130 42431		TRANSISTOR
D401	4822 130 32778		DIODE
D402	4822 130 32778		DIODE
D403	4822 130 32778		DIODE
R401	4822 116 83185		RESISTOR 560R,1/10W
R402	4822 116 83145		RESISTOR 1kR,1/10W
R403	4822 116 83148		RESISTOR 1MR,1/10W
R404	4822 116 83146		RESISTOR 10kR,1/10W
R405	4822 117 10023		RESISTOR 470kR,1/10W
R406	4822 116 83145		RESISTOR 1kR,1/10W
R407	4822 116 83145		RESISTOR 1kR,1/10W
R408	4822 116 81536		RESISTOR 1kR,1/6W
R409	4822 116 81536		RESISTOR 1kR,1/6W
R410	4822 116 83164		RESISTOR 22kR,1/10W
R411	4822 116 83166		RESISTOR 2.2MR,1/10W
R412	4822 116 83183		RESISTOR 47kR,1/10W
R413	4822 116 83163		RESISTOR 2.2kR,1/10W
R414	4822 050 11202		RESISTOR 1.2kR,1/6W
R415	4822 116 83175		RESISTOR 3.3kR,1/10W
R416	4822 116 83164		RESISTOR 22kR,1/10W
R417	4822 116 83164		RESISTOR 22kR,1/10W
R418	4822 116 83148		RESISTOR 1MR,1/10W
R419	4822 050 12703		RESISTOR 27kR,1/6W
R421	4822 116 83171		RESISTOR 270kR,1/10W
R423	4822 116 83148		RESISTOR 1MR,1/10W
R424	4822 116 83169		RESISTOR 27kR,1/10W
R429	4822 117 10019		RESISTOR 39kR,1/10W
R430	4822 116 83223		RESISTOR 3.3MR,1/10W
R431	4822 116 83171		RESISTOR 270kR,1/10W
R432	4822 116 83196		RESISTOR 8.2kR,1/10W
R436	4822 116 83145		RESISTOR 1kR,1/10W
R438	4822 050 11004		RESISTOR 100kR,1/6W
R439	4822 116 83156		RESISTOR 15kR,1/10W
R440	4822 116 83185		RESISTOR 560R,1/10W
R441	4822 116 83182		RESISTOR 4.7kR,1/10W
R442	4822 116 83187		RESISTOR 56kR,1/10W
R443	4822 116 83147		RESISTOR 100kR,1/10W
C401	4822 126 11612		CAPACITOR 0.001UF,50V
C402	4822 124 80945		E CAPACITOR 22UF,25V
C403	4822 124 80945		E CAPACITOR 22UF,25V
C404	4822 126 12819		CAPACITOR 180pF,50V
C405	4822 126 11612		CAPACITOR 0.001UF,50V
C407	4822 126 11612		CAPACITOR 0.001UF,50V
C408	4822 121 70362		F CAPACITOR 0.056UF,50V
C409	4822 126 11612		CAPACITOR 0.001UF,50V
C410	4822 126 11611		CAPACITOR 0.01UF,25V
C411	4822 126 11611		CAPACITOR 0.01UF,25V
C412	4822 124 23851		E CAPACITOR 10UF,50V
C413	4822 121 43974		F CAPACITOR 0.22UF,50V
C414	4822 126 12801		CAPACITOR 0.022UF,25V
C415	4822 124 80359		E CAPACITOR 4.7UF,50V
C416	4822 124 80359		E CAPACITOR 4.7UF,50V
C417	4822 124 23851		E CAPACITOR 10UF,50V
C418	4822 124 23851		E CAPACITOR 10UF,50V
C419	4822 126 12893		CAPACITOR 0.022UF,16V
C420	4822 121 70011		F CAPACITOR 0.33UF,50V
C421	4822 126 11858		CAPACITOR 470pF,50V
C422	4822 126 11612		CAPACITOR 0.001UF,50V
C431	4822 124 80945		E CAPACITOR 22UF,25V
C432	4822 126 11611		CAPACITOR 0.01UF,25V
C433	4822 126 12885		CAPACITOR 22pF,50V
C434	4822 126 12443		CAPACITOR 47pF,50V
C435	4822 126 11602		CAPACITOR 39pF,50V
C436	4822 126 11832		CAPACITOR 100pF,50V
C437	4822 124 80945		E CAPACITOR 22UF,25V
C438	4822 126 11611		CAPACITOR 0.01UF,25V
C439	4822 126 11832		CAPACITOR 100pF,50V
C836	4822 124 80948		E CAPACITOR 470UF,10V
C854	4822 124 80945		E CAPACITOR 22UF,25V
X401	4822 242 81342	$	CRYSTAL RESONATOR
CP401	5322 157 53342	$	CIRCUIT PROTECTOR

-SYSTEM CONTROL-

IC601	4822 209 33639		QFP IC (MCU) (HD6433926A73F)
IC602	4822 209 30236		IC (CAT93C46P)
IC603	4822 209 33641		IC (MM1255XF)
Q601	4822 130 61553		TRANSISTOR
Q602	4822 130 61553		TRANSISTOR
Q603	4822 130 61553		TRANSISTOR
Q604	4822 130 61553		TRANSISTOR
Q605	4822 130 61553		TRANSISTOR (VR254/55)
Q605	4822 130 61936		TRANSISTOR (VR454/55)
Q606	4822 130 61553		TRANSISTOR
Q607	4822 130 61553		TRANSISTOR
Q608	4822 130 61553		TRANSISTOR
Q609	4822 130 61553		TRANSISTOR
Q610	4822 130 63496		TRANSISTOR
Q611	4822 130 63596		TRANSISTOR
D601	4822 130 81748		DIODE
D602	4822 130 81748		DIODE

D605	4822 130 32778	DIODE
D606	4822 130 32778	DIODE
D607	4822 130 32778	DIODE
D610	4822 130 32778	DIODE
D611	4822 130 32778	DIODE
D612	4822 130 32778	DIODE
D672	4822 130 81748	DIODE
D673	4822 130 81748	DIODE
R601	4822 116 83182	RESISTOR 4.7kR,1/10W
R602	4822 116 83182	RESISTOR 4.7kR,1/10W
R603	4822 116 83145	RESISTOR 1kR,1/10W
R605	4822 116 82086	RESISTOR 680R,1/6W
R606	4822 116 81536	RESISTOR 1kR,1/6W
R607	4822 116 81641	RESISTOR 4.7kR,1/6W
R608	4822 116 83182	RESISTOR 4.7kR,1/10W
R610	4822 116 83182	RESISTOR 4.7kR,1/10W
R611	4822 116 83182	RESISTOR 4.7kR,1/10W
R612	4822 116 83182	RESISTOR 4.7kR,1/10W
R613	4822 116 83182	RESISTOR 4.7kR,1/10W
R614	4822 116 83182	RESISTOR 4.7kR,1/10W
R615	4822 116 83145	RESISTOR 1kR,1/10W
R616	4822 116 83175	RESISTOR 3.3kR,1/10W
R617	4822 116 83175	RESISTOR 3.3kR,1/10W
R618	4822 116 83145	RESISTOR 1kR,1/10W
R622	4822 116 83182	RESISTOR 4.7kR,1/10W
R623	4822 116 81641	RESISTOR 4.7kR,1/6W
R624	4822 116 83182	RESISTOR 4.7kR,1/10W
R625	4822 116 83182	RESISTOR 4.7kR,1/10W
R627	4822 116 83145	RESISTOR 1kR,1/10W
R628	4822 116 83145	RESISTOR 1kR,1/10W
R629	4822 116 83145	RESISTOR 1kR,1/10W
R630	4822 116 83145	RESISTOR 1kR,1/10W
R631	4822 116 83168	RESISTOR 2.7kR,1/10W
R632	4822 116 83145	RESISTOR 1kR,1/10W
R633	4822 116 83145	RESISTOR 1kR,1/10W
R634	4822 116 83182	RESISTOR 4.7kR,1/10W
R635	4822 116 83182	RESISTOR 4.7kR,1/10W
R637	4822 116 83182	RESISTOR 4.7kR,1/10W
R638	4822 116 83182	RESISTOR 4.7kR,1/10W
R639	4822 116 83147	RESISTOR 100kR,1/10W
R640	4822 116 83142	RESISTOR 0R,1/10W
R641	4822 116 83182	RESISTOR 4.7kR,1/10W
R642	4822 116 83145	RESISTOR 1kR,1/10W
R645	4822 116 81641	RESISTOR 4.7kR,1/6W
R648	4822 116 81536	RESISTOR 1kR,1/6W
R655	4822 116 83176	RESISTOR 33kR,1/10W
R656	4822 116 83183	RESISTOR 47kR,1/10W
R657	4822 116 83181	RESISTOR 470R,1/10W
R658	4822 116 83176	RESISTOR 33kR,1/10W
R659	4822 116 81641	RESISTOR 4.7kR,1/6W
R660	4822 116 83146	RESISTOR 10kR,1/10W
R661	4822 116 81636	RESISTOR 10kR,1/6W
R662	4822 116 83182	RESISTOR 4.7kR,1/10W
R663	4822 116 83146	RESISTOR 10kR,1/10W
R664	4822 116 83146	RESISTOR 10kR,1/10W
R665	4822 116 83148	RESISTOR 1MR,1/10W
R666	4822 116 83146	RESISTOR 10kR,1/10W
R667	4822 116 83147	RESISTOR 100kR,1/10W
R669	4822 116 83147	RESISTOR 100kR,1/10W
R670	4822 050 11203	RESISTOR 12kR,1/6W
R671	4822 116 83176	RESISTOR 33kR,1/10W
R672	4822 116 83146	RESISTOR 10kR,1/10W
R673	4822 116 83146	RESISTOR 10kR,1/10W
R674	4822 116 83156	RESISTOR 15kR,1/10W
R675	4822 116 83146	RESISTOR 10kR,1/10W

R676	4822 116 83163	RESISTOR 2.2kR,1/10W
R677	4822 116 83182	RESISTOR 4.7kR,1/10W
R680	4822 116 83178	RESISTOR 390R,1/10W
R681	4822 117 10017	RESISTOR 220R,1/10W
R682	4822 116 83147	RESISTOR 100kR,1/10W
R683	4822 116 83147	RESISTOR 100kR,1/10W
R684	4822 116 83147	RESISTOR 100kR,1/10W
C610	4822 124 80947	E CAPACITOR 2200UF,6.3V
C611	4822 126 11601	CAPACITOR 0.01UF,50V
C612	4822 124 80806	E CAPACITOR 100UF,6.3V
C613	4822 126 11833	CAPACITOR 27pF,50V
C614	4822 125 60201	TRIM CAPACITOR
C615	4822 126 11601	CAPACITOR 0.01UF,50V
C616	4822 124 23286	E CAPACITOR 10UF,16V
C617	4822 126 11601	CAPACITOR 0.01UF,50V
C619	4822 126 11632	CAPACITOR 0.1UF,25V
C621	4822 124 23286	E CAPACITOR 10UF,16V
C622	4822 124 23286	E CAPACITOR 10UF,16V
C624	4822 126 12401	CAPACITOR 270pF,50V
L601	4822 157 60104	COIL 100UH
CF601	4822 242 81533	RESONATOR
X601	4822 242 81531	CRYSTAL RESONATOR
TH601	4822 111 91712	POSI THERMISTOR
CP601	4822 209 63612	CIRCUIT PROTECTOR
CP602	4822 209 63611	CIRCUIT PROTECTOR

-SWITCHING REGULATOR SECTION-

Q801	4822 130 63371	FE TRANSISTOR
Q802	4822 130 62794	TRANSISTOR
Q831	4822 130 42431	TRANSISTOR
Q851	4822 130 62794	TRANSISTOR
Q852	4822 130 62801	TRANSISTOR
Q853	4822 130 42431	TRANSISTOR
Q854	4822 130 61903	TRANSISTOR
Q855	4822 130 61892	TRANSISTOR
D801	4822 130 82698	DIODE
D802	4822 130 82698	DIODE
D803	4822 130 82698	DIODE
D804	4822 130 82698	DIODE
D806	4822 130 32778	DIODE
D807	4822 130 83712	ZENER DIODE
D808	4822 130 32778	DIODE
D809	4822 130 82686	FR DIODE
D810	4822 130 82686	FR DIODE
D811	4822 130 83742	ZENER DIODE
D831	4822 130 82687	FR DIODE
D832	4822 130 82696	FR DIODE
D833	4822 130 82696	FR DIODE
D835	4822 130 82687	FR DIODE
D836	4822 130 81377	DIODE
D837	4822 130 82687	FR DIODE
D838	4822 130 32778	DIODE
D840	4822 130 83149	ZENER DIODE
D841	4822 130 83156	ZENER DIODE
D842	4822 130 82693	ZENER DIODE
D843	4822 130 32778	DIODE
D852	4822 130 83304	DIODE
D853	4822 130 32778	DIODE

R804	4822 116 83333		RESISTOR 330kR,1/6W
R805	4822 116 83333		RESISTOR 330kR,1/6W
R806	4822 116 81536		RESISTOR 1kR,1/6W
R807	4822 050 15603		RESISTOR 56kR,1/6W
R808	4822 117 10052		MF RESISTOR 0.39R,1W
R809	4822 116 83141		OMF RESISTOR 68kR,2W
R810	4822 117 10008		OMF RESISTOR 330R,2W
R811	4822 116 81537		RESISTOR 1.5kR,1/6W
R812	4822 116 81729		RESISTOR 470R,1/6W
R813	4822 116 81536		RESISTOR 1kR,1/6W
R814	4822 116 81727		RESISTOR 3.3kR,1/6W
R815	4822 111 30976		RESISTOR 68kR,1/6W
R816	4822 116 83333		RESISTOR 330kR,1/6W
R831	4822 117 11412		MF RESISTOR 1.8R,1W
R832	4822 116 83204	$	FUSIBLE RESISTOR 47R,1/4W
R833	4822 117 10425	$	OMF RESISTOR 2.2kR,2W
R834	4822 050 24871		CMF RESISTOR 487R,1/4W
R835	4822 116 81729		RESISTOR 470R,1/6W
R836	4822 050 23741		CMF RESISTOR 374R,1/4W
R837	4822 050 11202		RESISTOR 1.2kR,1/6W
R851	4822 116 83181		RESISTOR 470R,1/10W
R852	4822 116 81694		RESISTOR 47kR,1/6W
R853	4822 116 83146		RESISTOR 10kR,1/10W
R854	4822 116 83181		RESISTOR 470R,1/10W
R855	4822 100 12046		V RESISTOR,SWD 5V
R856	4822 116 81729		RESISTOR 470R,1/6W
R858	4822 116 83145		RESISTOR 1kR,1/10W
R861	4822 116 83145		RESISTOR 1kR,1/10W
R862	4822 116 83185		RESISTOR 560R,1/10W
R863	4822 116 81729		RESISTOR 470R,1/6W
C802	4822 121 70358	$	F CAPACITOR 0.022UF
C804	4822 126 12794	$	CAPACITOR 100pF
C805	4822 126 12794	$	CAPACITOR 100pF
C809	4822 126 12433	$	CAPACITOR 0.001UF
C810	4822 124 23819		E CAPACITOR 68UF,400V
C812	4822 124 23852		E CAPACITOR 2.2UF,50V
C813	4822 124 11223		CAPACITOR 0.0047UF,1KV
C816	4822 121 70515		CAPACITOR 0.0056UF,50V
C817	4822 126 10419		CAPACITOR 100pF,50V
C819	4822 126 10424		CAPACITOR 330pF,50V
C821	4822 121 43972		F CAPACITOR 0.1UF,50V
C831	4822 124 23856		E CAPACITOR 22UF,63V
C832	4822 124 80656		E CAPACITOR 470UF,16V
C833	4822 124 80655		E CAPACITOR 470UF,10V
C834	4822 124 23853		E CAPACITOR 22UF,50V
C835	4822 124 80654		E CAPACITOR 100UF,10V
C836	4822 124 23844		E CAPACITOR 470UF,10V
C837	4822 124 80896		E CAPACITOR 220UF,25V
C838	4822 124 23854		E CAPACITOR 0.47UF,50V
C839	4822 121 70224		F CAPACITOR 0.01UF,50V
C840	4822 124 80888		E CAPACITOR 220UF,25V
C842	4822 124 23098		E CAPACITOR 470UF,16V
C851	4822 124 80806		E CAPACITOR 100UF,6.3V
C852	4822 124 23286		E CAPACITOR 10UF,16V
C853	4822 124 42285		E CAPACITOR 100UF,16V
C854	4822 124 80944		E CAPACITOR 22UF,6.3V
C855	4822 124 80806		E CAPACITOR 100UF,6.3V
C856	4822 121 70514		F CAPACITOR 0.001UF,50V
L831	4822 157 70119		COIL
L832	4822 157 70119		COIL
L833	4822 157 70119		COIL
L851	4822 157 71241		COIL

PC801	4822 130 83425	$	PH COUPLER
T801	4822 148 81391	$	SW TRANS
SLD1	4822 466 62559	$	SHIELD CASE
FC801	4822 256 92131	$	FUSE CLIP
FC802	4822 256 92131	$	FUSE CLIP
LF801	4822 157 712624	$	LINE FILTER
CP801	4822 209 63611	$	CIRCUIT PROTECTOR
F801	4822 070 31252	$	FUSE T1.2A

-TERMINAL BOARD SECTION-

D751	4822 130 32778	DIODE
D752	4822 130 32778	DIODE
R701	4822 116 83194	RESISTOR 75R,1/10W (VR254/55)
R703	4822 116 83142	RESISTOR 0R,1/10W
L701	4822 157 60438	COIL 10UH
L702	4822 157 60438	COIL 10UH

VIDEO UNIT BOARD ASSMEBLY

PWBA1	4822 214 60227	VIDEO UNIT BOARD ASSEMBLY
IC1	4822 209 32733	IC (TL8839P)
IC2	4822 209 33492	IC (JCP0035-2)
Q1	4822 130 60862	TRANSISTOR
Q2	4822 130 60669	TRANSISTOR
Q3	4822 130 60862	TRANSISTOR
Q4	4822 130 60669	TRANSISTOR
Q5	4822 130 60669	TRANSISTOR
Q6	4822 130 60669	TRANSISTOR
Q7	4822 130 60669	TRANSISTOR
Q8	4822 130 63164	TRANSISTOR
Q9	4822 130 60669	TRANSISTOR
Q10	4822 130 60862	TRANSISTOR
Q11	4822 130 60997	TRANSISTOR
Q12	4822 130 60997	TRANSISTOR
Q13	4822 130 60854	TRANSISTOR
Q14	4822 130 60862	TRANSISTOR
Q15	4822 130 60669	TRANSISTOR
D1	4822 130 32778	DIODE
D2	4822 130 32778	DIODE
D3	4822 130 32778	DIODE
D4	4822 130 32778	DIODE
D5	4822 130 32778	DIODE
D7	4822 130 82708	DIODE
R1	4822 051 30681	RESISTOR 680R,1/16W
R2	4822 051 30475	RESISTOR 4.7MR,1/16W
R3	4822 051 30361	RESISTOR 360R,1/16W
R4	4822 051 30103	RESISTOR 10kR,1/16W
R5	4822 051 30102	RESISTOR 1kR,1/16W
R6	4822 051 30475	RESISTOR 4.7MR,1/16W
R7	4822 051 30681	RESISTOR 680R,1/16W
R8	4822 051 30102	RESISTOR 1kR,1/16W
R9	4822 051 30102	RESISTOR 1kR,1/16W
R10	4822 051 30621	RESISTOR 620R,1/16W
R11	4822 051 30331	RESISTOR 330R,1/16W
R12	4822 051 30182	RESISTOR 1.8kR,1/16W

R13	4822 051 30222	RESISTOR 2.2kR,1/16W
R14	4822 051 30102	RESISTOR 1kR,1/16W
R15	4822 051 30221	RESISTOR 220R,1/16W
R16	4822 051 30332	RESISTOR 3.3kR,1/16W
R17	4822 051 30392	RESISTOR 3.9kR,1/16W
R18	4822 101 30673	V RESISTOR,NC BALANCE
R19	4822 051 30222	RESISTOR 2.2kR,1/16W
R20	4822 051 30681	RESISTOR 680R,1/16W
R21	4822 051 30102	RESISTOR 1kR,1/16W
R22	4822 051 30122	RESISTOR 1.2kR,1/16W
R23	4822 051 30272	RESISTOR 2.7kR,1/16W
R24	4822 051 30821	RESISTOR 820R,1/16W
R25	4822 101 10852	V RESISTOR,PB Y LEVEL
R26	4822 051 30333	RESISTOR 33kR,1/16W
R27	4822 051 30561	RESISTOR 560R,1/16W
R28	4822 101 10892	V RESISTOR,CARRIER
R29	4822 101 10851	V RESISTOR,DEVIATION
R30	4822 051 30432	RESISTOR 4.3kR,1/16W
R31	4822 051 30122	RESISTOR 1.2kR,1/16W
R32	4822 051 30562	RESISTOR 5.6kR,1/16W
R33	4822 051 30561	RESISTOR 560R,1/16W
R34	4822 051 30102	RESISTOR 1kR,1/16W
R35	4822 051 30272	RESISTOR 2.7kR,1/16W
R36	4822 051 30103	RESISTOR 10kR,1/16W
R37	4822 117 10427	RESISTOR 510R,1/16W
R38	4822 051 30103	RESISTOR 10kR,1/16W
R39	4822 051 30102	RESISTOR 1kR,1/16W
R40	4822 051 30102	RESISTOR 1kR,1/16W
R41	4822 051 30102	RESISTOR 1kR,1/16W
R42	4822 101 10889	V RESISTOR,EE Y LEVEL
R43	4822 051 30823	RESISTOR 82kR,1/16W
R44	4822 051 30334	RESISTOR 330kR,1/16W
R45	4822 101 10851	V RESISTOR,W/D CLIP
R46	4822 051 30103	RESISTOR 10kR,1/16W
R47	4822 051 30434	RESISTOR 430kR,1/16W
R48	4822 051 30562	RESISTOR 5.6kR,1/16W
R49	4822 051 30105	RESISTOR 1MR,1/16W
R50	4822 051 30331	RESISTOR 330R,1/16W
R51	4822 051 30102	RESISTOR 1kR,1/16W
R52	4822 101 10891	V RESISTOR,REC COLOR LEVEL
R53	4822 051 30102	RESISTOR 1kR,1/16W
R54	4822 051 30271	RESISTOR 270R,1/16W
R55	4822 051 30333	RESISTOR 33kR,1/16W
R56	4822 051 30333	RESISTOR 33kR,1/16W
R57	4822 051 30102	RESISTOR 1kR,1/16W
R58	4822 051 30102	RESISTOR 1kR,1/16W
R59	4822 051 30102	RESISTOR 1kR,1/16W
R60	4822 117 10495	RESISTOR 1.3kR,1/16W
C1	4822 126 10027	CAPACITOR 220pF,50V
C2	4822 126 13042	CAPACITOR 680pF,50V
C3	4822 126 13317	CAPACITOR 330pF,50V
C4	4822 126 10026	CAPACITOR 22pF,50V
C5	4822 126 11621	CAPACITOR 0.01UF,50V
C6	4822 126 11623	CAPACITOR 15pF,50V
C7	4822 126 10026	CAPACITOR 22pF,50V
C8	4822 126 10034	CAPACITOR 68pF,50V
C9	4822 126 11622	CAPACITOR 120pF,50V
C10	4822 126 11621	CAPACITOR 0.01UF,50V
C11	4822 126 11619	CAPACITOR 0.047UF,16V
C12	4822 124 23854	E CAPACITOR 0.47UF,50V
C13	4822 126 11647	CAPACITOR 0.01UF,16V
C14	4822 126 10055	CAPACITOR 0.1UF,16V
C15	4822 126 10055	CAPACITOR 0.1UF,16V
C16	4822 122 33988	CAPACITOR 39pF,50V
C17	4822 126 10025	CAPACITOR 18pF,50V
C18	4822 126 10026	CAPACITOR 22pF,50V
C19	4822 124 80323	E CAPACITOR 47UF,6.3V
C20	4822 126 11621	CAPACITOR 0.01UF,50V
C21	4822 126 10029	CAPACITOR 33pF,50V

C22	4822 124 80894		E CAPACITOR 0.47UF,50V
C24	4822 124 23848		E CAPACITOR 4.7UF,25V
C25	4822 124 23286		E CAPACITOR 10UF,16V
C26	4822 124 80324		E CAPACITOR 22UF,10V
C27	4822 124 23286		E CAPACITOR 10UF,16V
C28	4822 124 23839		E CAPACITOR 100UF,6.3V
C29	4822 126 10055		CAPACITOR 0.1UF,16V
C30	4822 126 11621		CAPACITOR 0.01UF,50V
C31	4822 126 11621		CAPACITOR 0.01UF,50V
C32	4822 124 23852		E CAPACITOR 2.2UF,50V
C33	4822 124 23854		E CAPACITOR 0.47UF,50V
C34	4822 126 11628		CAPACITOR 62pF,50V
C35	4822 126 11624		CAPACITOR 200pF,50V
C36	4822 124 23848		E CAPACITOR 4.7UF,25V
C37	4822 126 11393		CAPACITOR 0.022UF,25V
C38	4822 126 12889		CAPACITOR 13pF,50V
C39	4822 126 11621		CAPACITOR 0.01UF,50V
C40	4822 124 23287		E CAPACITOR 1UF,50V
C41	4822 126 11393		CAPACITOR 0.022UF,25V
C42	4822 122 33986		CAPACITOR 100pF,50V
C43	4822 122 33988		CAPACITOR 39pF,50V
C44	4822 124 80357		NP E CAPACITOR 4.7UF,25V
C45	4822 124 23848		E CAPACITOR 4.7UF,25V
C46	4822 126 11619		CAPACITOR 0.047UF,16V
C47	4822 124 23849		E CAPACITOR 0.1UF,50V
C48	4822 124 23854		E CAPACITOR 0.47UF,50V
C49	4822 126 11618		CAPACITOR 0.033UF,16V
C50	4822 126 11621		CAPACITOR 0.01UF,50V
C51	4822 126 10055		CAPACITOR 0.1UF,16V
C52	4822 126 11621		CAPACITOR 0.01UF,50V
C53	4822 126 10055		CAPACITOR 0.1UF,16V
C54	4822 126 12888		CAPACITOR 0.047UF,16V
C55	4822 124 23848		E CAPACITOR 4.7UF,25V
C56	4822 126 11938		CAPACITOR 5pF,50V
C57	4822 124 23287		E CAPACITOR 1UF,50V
C58	4822 126 11621		CAPACITOR 0.01UF,50V
C59	4822 126 10055		CAPACITOR 0.1UF,16V
C60	4822 124 23839		E CAPACITOR 100UF,6.3V
C61	4822 126 11573		CAPACITOR 0.01UF,50V
C62	4822 126 10017		CAPACITOR 0.0018UF,50V
C63	4822 126 12891		CAPACITOR 30pF,50V
C64	4822 126 10055		CAPACITOR 0.1UF,16V
C65	4822 126 12888		CAPACITOR 0.047UF,16V
C69	4822 126 11573		CAPACITOR 0.01UF,25V
C70	4822 126 11621		CAPACITOR 0.01UF,50V
C71	4822 126 10055		CAPACITOR 0.1UF,16V
L1	4822 157 62373		COIL 120UH
L2	4822 153 10397		COIL 33UH
L3	4822 153 10397		COIL 33UH
L4	4822 157 90199		COIL 82UH
L5	4822 157 60066		COIL 220UH
L6	4822 157 70191	$	COIL 100UH
L7	4822 157 62381		COIL 68UH
L8	4822 157 60104	$	COIL 100UH
L9	4822 157 62373		COIL 120UH
L10	4822 157 62374		COIL 15UH
L11	4822 157 63398		COIL 560UH
L12	4822 157 62381		COIL 68UH
LPF1	4822 156 21698		LOW PASS FILTER
LPF2	4822 156 21702		LOW PASS FILTER
DL1	4822 320 40303		COMB FILTER
X1	4822 242 81409	$	CRYSTAL RESONATOR
CN1	4822 267 31537		PIN HEADER
CN2	4822 267 70341		PIN HEADER

CN3	4822 267 31537	PIN HEADER

AUDIO/CONTROL HEAD BOARD ASSEMBLY

PWBA6	4822 214 6019	AUDIO CONTROL HEAD BOARD ASSEMBLY
CN1	4822 267 70336	WIRE TRAP,(1-7) MAIN

FRONT BOARD ASSMEBLY

IC1	4822 209 32734	$	IC (UPD16312GB(E))
IC2	4822 209 32712	$	IR DETECT UNIT
D1	4822 130 83431		DIODE
D2	4822 130 83431		DIODE
D3	4822 130 83431		DIODE
D6	4822 130 80793		ZENER DIODE
D21	4822 130 83431		DIODE,SP DISP (VR454/55)
D22	4822 130 83431		DIODE,NTSC
D23	4822 130 83431		DIODE,2 HEAD (VR254/55)
D51	4822 130 32778		DIODE
D52	4822 130 32778		DIODE
R1	4822 116 81636		RESISTOR 10kR,1/6W
R2	4822 116 81636		RESISTOR 10kR,1/6W
R3	4822 116 81636		RESISTOR 10kR,1/6W
R4	4822 116 81636		RESISTOR 10kR,1/6W
R5	4822 116 81641		RESISTOR 4.7kR,1/6W
R6	4822 116 81542		RESISTOR 2.2kR,1/6W
R7	4822 116 81641		RESISTOR 4.7kR,1/6W
R8	4822 050 11004		RESISTOR 100kR,1/6W
R9	4822 116 81636		RESISTOR 10kR,1/6W
R10	4822 116 81636		RESISTOR 10kR,1/6W
R11	4822 116 81638		RESISTOR 33kR,1/6W
R12	4822 116 81638		RESISTOR 33kR,1/6W
R13	4822 116 81638		RESISTOR 33kR,1/6W
R14	4822 116 81638		RESISTOR 33kR,1/6W
R20	4822 111 30937		RESISTOR,B 0R,1/6W
R51	4822 050 17509		RESISTOR 75R,1/6W
C1	4822 124 80661		E CAPACITOR 33UF,6.3V
C2	4822 126 12804		CAPACITOR 0.047UF,50V
C3	4822 124 23851		E CAPACITOR 10UF,50V
C4	4822 126 11644		CAPACITOR 56pF,50V
C5	4822 126 11643		CAPACITOR 33pF,50V
C6	4822 124 80323		E CAPACITOR 47UF,6.3V
L1	4822 157 70127	$	COIL 100UH
S1	4822 276 13309		TACT SWITCH,POWER
S2	4822 276 13309		TACT SWITCH,STOP
S3	4822 276 13309		TACT SWITCH,FF
S4	4822 276 13309		TACT SWITCH,CH+
S5	4822 276 13309		TACT SWITCH,CH-
S6	4822 276 13309		TACT SWITCH,PLAY
S8	4822 276 13309		TACT SWITCH,REC
S9	4822 276 13309		TACT SWITCH,REW
S10	4822 276 13309		TACT SWITCH,PAL/MESE
FDP1	4822 130 91387		FLUORESCENT DISPLAY
HD1	4822 256 92082		FDP HOLDER(L)
HD2	4822 256 92083		FDP HOLDER(R)
JA51	4822 265 20678		PIN JACK,VIDEO IN (VR454/55)
JA52	4822 265 20678		PIN JACK,AUDIO IN (VR454/55)

CN1	4822 267 51369	FFC CONNECTOR,(1-9) MAIN
CN2	4822 267 51369	FFC CONNECTOR,(1-9) MAIN (VR454/55)

PRE/REC AMP BOARD ASSEMBLY

PARTS FOR VR254/55

IC501	4822 209 32546	IC (BA7182AS)
Q503	4822 130 42431	TRANSISTOR
Q504	4822 130 42431	TRANSISTOR
Q506	4822 130 63144	TRANSISTOR
Q507	4822 130 63629	TRANSISTOR
Q508	4822 130 42593	TRANSISTOR
Q513	4822 130 63629	TRANSISTOR
R506	4822 116 83163	RESISTOR 2.2kR,1/10W
R507	4822 116 83155	RESISTOR 1.5kR,1/10W
R508	4822 116 83191	RESISTOR 680R,1/10W
R515	4822 116 82086	RESISTOR 680R,1/6W
R516	4822 116 81536	RESISTOR 1kR,1/6W
R518	4822 111 41569	RESISTOR 2.7kR,1/6W
R519	4822 116 83168	RESISTOR 2.7kR,1/10W
R520	4822 116 83178	RESISTOR 390R,1/10W
R521	4822 117 10056	RESISTOR 910R,1/10W
R522	4822 116 83178	RESISTOR 390R,1/10W
R524	4822 116 83168	RESISTOR 2.7kR,1/10W
R525	4822 117 10016	RESISTOR 1.2kR,1/10W
R526	4822 116 83145	RESISTOR 1kR,1/10W
R527	4822 117 10016	RESISTOR 1.2kR,1/10W
R528	4822 116 83178	RESISTOR 390R,1/10W
R535	4822 116 83185	RESISTOR 560R,1/10W
R550	4822 116 81636	RESISTOR 10kR,1/6W
R551	4822 116 81636	RESISTOR 10kR,1/6W
R554	4822 111 31003	RESISTOR 36kR,1/6W
C504	4822 126 11601	CAPACITOR 0.01UF,50V
C507	4822 126 11601	CAPACITOR 0.01UF,50V
C508	4822 124 80704	E CAPACITOR 47UF,6.3V
C509	4822 126 11601	CAPACITOR 0.01UF,50V
C512	4822 126 11833	CAPACITOR 27pF,50V
C513	4822 126 11833	CAPACITOR 27pF,50V
C514	4822 126 13319	CAPACITOR 2pF,50V
C515	4822 126 12885	CAPACITOR 22pF,50V
C516	4822 126 11601	CAPACITOR 0.01UF,50V
C517	4822 126 12397	CAPACITOR 15pF,50V
C519	4822 126 12485	CAPACITOR 18pF,50V
C521	4822 126 12383	CAPACITOR 0.001UF,50V
C550	4822 121 43972	F CAPACITOR 0.1UF,50V
C551	4822 126 11647	CAPACITOR 0.01UF,16V
C552	4822 126 12806	CAPACITOR 68pF,50V
C554	4822 126 11601	CAPACITOR 0.01UF,50V
C555	4822 124 80704	E CAPACITOR 47UF,6.3V
C556	4822 126 13287	CAPACITOR 0.1UF,25V
C557	4822 126 13287	CAPACITOR 0.1UF,25V
C558	4822 121 43972	F CAPACITOR 0.1UF,50V
C559	4822 126 13287	CAPACITOR 0.1UF,25V
C560	4822 126 13287	CAPACITOR 0.1UF,25V
C561	4822 121 43972	F CAPACITOR 0.1UF,50V
C562	4822 121 43972	F CAPACITOR 0.1UF,50V
C566	4822 126 12887	CAPACITOR 39pF,50V
L501	4822 157 60104	COIL 100UH

L502	4822 157 60104	COIL 100UH
L505	4822 157 62379	COIL 56UH
L506	4822 157 62379	COIL 56UH
L508	4822 157 62379	COIL 56UH
SLD1	4822 464 50974	SHIELD FRAME,PRE
CN501	4822 267 60384	CONNECTOR
CN502	4822 267 41106	CONNECTOR

PARTS FOR VR454/55

IC501	4822 209 32545	IC (AN3389SBNS-XE)
Q503	4822 130 60669	TRANSISTOR
Q504	4822 130 60669	TRANSISTOR
Q505	4822 130 60862	TRANSISTOR
Q506	4822 130 60669	TRANSISTOR
Q507	4822 130 60669	TRANSISTOR
Q508	4822 130 60997	TRANSISTOR
Q512	4822 130 63164	TRANSISTOR
Q513	4822 130 61524	TRANSISTOR
Q514	4822 130 60854	TRANSISTOR
D501	4822 130 32778	DIODE
D502	4822 130 32778	DIODE
D505	4822 130 32778	DIODE
D508	4822 130 80375	DIODE
R501	4822 116 83175	RESISTOR 3.3kR,1/10W
R509	4822 116 83163	RESISTOR 2.2kR,1/10W
R510	4822 116 83163	RESISTOR 2.2kR,1/10W
R514	4822 116 83191	RESISTOR 680R,1/10W
R515	4822 116 83145	RESISTOR 1kR,1/10W
R516	4822 116 83185	RESISTOR 560R,1/10W
R517	4822 116 83163	RESISTOR 2.2kR,1/10W
R518	4822 116 83163	RESISTOR 2.2kR,1/10W
R519	4822 116 83178	RESISTOR 390R,1/10W
R522	4822 116 83163	RESISTOR 2.2kR,1/10W
R523	4822 116 83163	RESISTOR 2.2kR,1/10W
R524	4822 116 83195	RESISTOR 820R,1/10W
R525	4822 116 83155	RESISTOR 1.5kR,1/10W
R526	4822 117 10016	RESISTOR 1.2kR,1/10W
R527	4822 116 83178	RESISTOR 390R,1/10W
R528	4822 117 10016	RESISTOR 1.2kR,1/10W
R531	4822 116 83145	RESISTOR 1kR,1/10W
R532	4822 116 83163	RESISTOR 2.2kR,1/10W
R535	4822 116 83151	RESISTOR 12kR,1/10W
R536	4822 117 10497	RESISTOR 43kR,1/10W
R539	4822 116 83333	RESISTOR 330kR,1/6W
R541	4822 116 83167	RESISTOR 270R,1/10W
R542	4822 116 83167	RESISTOR 270R,1/10W
R543	4822 116 83167	RESISTOR 270R,1/10W
R544	4822 116 83167	RESISTOR 270R,1/10W
R545	4822 116 83195	RESISTOR 820R,1/10W
R546	4822 111 30937	RESISTOR 0R,1/6W
R548	4822 116 83157	RESISTOR 150kR,1/10W
R550	4822 117 10499	RESISTOR 180R,1/10W
R552	4822 116 83144	RESISTOR 100R,1/10W
R554	4822 116 81543	RESISTOR 820R,1/6W
C504	4822 126 11601	CAPACITOR 0.01UF,50V
C505	4822 126 11601	CAPACITOR 0.01UF,50V
C506	4822 126 11601	CAPACITOR 0.01UF,50V
C507	4822 126 12444	CAPACITOR 680pF,50V
C508	4822 126 12397	CAPACITOR 15pF,50V
C510	4822 126 12384	CAPACITOR 33pF,50V
C511	4822 126 11601	CAPACITOR 0.01UF,50V
C512	4822 126 12884	CAPACITOR 12pF,50V
C513	4822 126 11858	CAPACITOR 470pF,50V
C514	4822 126 12885	CAPACITOR 22pF,50V
C515	4822 126 12884	CAPACITOR 12pF,50V
C516	4822 126 12797	CAPACITOR 0.1UF,16V
C517	4822 126 11601	CAPACITOR 0.01UF,50V
C518	4822 126 12404	CAPACITOR 390pF,50V
C521	4822 126 11601	CAPACITOR 0.01UF,50V
C522	4822 121 43972	F CAPACITOR 0.1UF,50V
C523	4822 126 13322	CAPACITOR 0.033UF,50V
C524	4822 126 12806	CAPACITOR 68pF,50V
C525	4822 126 12428	CAPACITOR 56pF,50V
C526	4822 126 13322	CAPACITOR 0.033UF,50V
C527	4822 126 11601	CAPACITOR 0.01UF,50V
C528	4822 126 11601	CAPACITOR 0.01UF,50V
C529	4822 126 13322	CAPACITOR 0.033UF,50V
C530	4822 126 12806	CAPACITOR 68pF,50V
C531	4822 126 12428	CAPACITOR 56pF,50V
C532	4822 126 13322	CAPACITOR 0.033UF,50V
C533	4822 121 43972	F CAPACITOR 0.1UF,50V
C534	4822 126 11601	CAPACITOR 0.01UF,50V
C536	4822 124 23874	E CAPACITOR 47UF,16V
C537	4822 124 80704	E CAPACITOR 47UF,6.3V
C540	4822 126 12443	CAPACITOR 47pF,50V
C541	4822 126 11602	CAPACITOR 39pF,50V
C542	4822 121 43972	F CAPACITOR 0.1UF,50V
C543	4822 126 11601	CAPACITOR 0.01UF,50V
C549	4822 126 13287	CAPACITOR 0.1UF25V
C550	4822 126 11601	CAPACITOR 0.01UF,50V
C551	4822 126 11833	CAPACITOR 27pF,50V
C554	4822 126 12462	CAPACITOR 0.01UF,50V
L501	4822 157 71261	COIL 47UH
L503	4822 157 60104 $	COIL 100UH
L504	4822 157 62379	COIL 56UH
L505	4822 157 62377	COIL 22UH
L506	4822 157 62378	COIL 47UH
L507	4822 157 62378	COIL 47UH
L508	4822 157 62373	COIL 120UH
L509	4822 157 62377	COIL 22UH
L510	4822 157 62375	COIL 18UH
SLD1	4822 464 50974	SHIELD FRAME,PRE
CN501	4822 267 31794	B TO B CONNECTOR,(2-19) MAIN
CN502	4822 267 41117	CONNECTOR,(1-6) UPPER DRUM

DECK TERMINAL BOARD ASSEMBLY

IC1	4822 209 31732 $	IC (BA6418)
Q2	4822 130 63376	END SENSOR
D1	4822 130 83429	LE DIODE
D2	4822 130 83428	ZENER DIODE
R1	4822 116 81536	RESISTOR 1kR,1/6W
R3	4822 116 82084	RESISTOR 330R,1/6W
R4	4822 117 10435	RESISTOR 82R,1/6W
R6	4822 116 82084	RESISTOR 330R,1/6W
R7	4822 116 81727	RESISTOR 3.3kR,1/6W
C1	4822 126 10039	CAPACITOR 0.01UF16V
C3	4822 124 80383	E CAPACITOR 220UF,16V
PS1	4822 130 82705	PH INTERRUPTER
PS2	4822 130 82705	PH INTERRUPTER
WR1	4822 321 62499	PARALLEL WIRE
CN1	4822 267 51364	FFC CONNECTOR,(1-18) MAIN

CN2	4822 265 41137	7PIN CONNECTOR,(1-7) CAP MDA
CN3	4822 265 30908	4PIN CONNECTOR,(1-4) CASSETTE HOUSING
CN5	4822 265 20646	CONNECTOR,(1-2) LOAD MOTOR

CASSETTE HOUSING BOARD

Q2	4822 130 62798	PHOTO TRANSISTOR
C1	4822 126 10039	CAPACITOR 0.01UF,16V
S1	4822 276 13432	PUSH SWITCH
CN2	4822 267 41014	4PIN SOCKET,(1-4) DECK TERMINAL

TOOLS

4822 397 30262	ALIGNMENT TAPE (SP)
4822 397 30261	ALIGNMENT TAPE (LP)
4822 395 50262	ADJUSTMENT DRIVER
4822 395 50262	TORQUE GAUGE
4822 395 90615	BACK TENSION CASSETTE GAUGE
4822 395 90916	A/C HEAD POSITIONING TOOL
4822 395 90904	ROLLER DRIVER
4822 395 90915	PRESETTING UNIT
4822 395 90957	SMC REPLACEMENT TOOLS